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ROCKS AND MINERALS

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Whole No. 189

A Magazine for Mineralogists, Geologists and Collectors

APRIL, 1947

35c

11th LIST OF FINE MINERALS FROM AN OLD COLLECTION

SMITHSONITE, Tsumeb. Green xld. crust. 2½ x 1¾ ..... $ 1.50
BOURNONITE, Cornwall. Finely xld. w. Quartz xls. 2 x 1¼ 3.50
MEIONITE, Monte Somma. In fine glassy xls. in matrix. 3½ x 2½ ... 6.00
APATITE, Ehrenfriedersdorf. Large lilac xls. on rock. 1½ x 1 ..... 3.50
THENARDITE, Tsumeb. Group of dull xls. 2½ x 2 ..... 2.00
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CERUSSITE, Phoenixville, Pa. Xld. w. Malachite on rock. 2½ x 1½ .. 2.00
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GOLD, Leadville, Colo. Two ⅛" xld. patches on rusty Quartz. 2½ x 1½ 5.00
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TREMOLITE, Tessin, Switzerland. Bladed xls. in Dolomite. 4 x 3 ..... 2.00
BARITE, Cumberland. Two greenish-yellow xls. in parallel position. 3 x 2¼ 3.00

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No lists furnished, but enquiries for specific minerals welcomed.

ROCKS and MINERALS
PUBLISHED MONTHLY

Edited and Published by
PETER ZODAC

APRIL
1947

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CHIPS FROM THE QUARRY

THE ROCKY MOUNTAIN FEDERATION OF MINERAL SOCIETIES CONVENTION, SALT LAKE CITY, UTAH, JUNE 12-15, 1947

Plans for this convention are progressing nicely and from inquiries already received, will have a good attendance. There are many things and places of interest in Utah, so why not plan your convention to include these dates in your itinerary.

Highlights of meetings and the field trip to Topaz Mountain have already been noted in earlier announcements.

For further information, write to;

Prof. Junius J. Hayes, President
University of Utah
Salt Lake City, 2, Utah
or to
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223 West 9th South Street
Salt Lake City 4, Utah

Those desiring commercial space reservations, please contact.

A. M. Buranek, 1642 Browning Ave., Salt Lake City 5, Utah (Dial 7-7231)

A Boost for Rocks and Minerals

Editor R & M:—

I think *Rocks and Minerals* is the one magazine that actually warranted a rise in price. The February issue was one of the best so far.

David A. Rauh
Angelica, N. Y.

March 5, 1947

Big Cheer for Rocks and Minerals!

Editor R & M:—

Our magazine is really coming out now. I think you are doing a wonderful job for all of us.

Here is another big cheer for *Rocks and Minerals* and for the continued success and growth of the Association.

L. H. McMurray
Rock Hill, S. C.

March 7, 1947

SOME LOST MINERAL LOCALITIES OF NEW ENGLAND

V. Calcite and Barite from Medford, Mass.

BY PROF. CHARLES PALACHE
Cambridge, Mass.

This locality is so well lost that I cannot even tell just where it was located. It was in one of the felsite quarries operated on the southern margin of the Middlesex Fells Reservation not far outside of the town of Medford. What I know of it was learned from Mr. J. C. Rand who found it and supplied me with specimens. I recall his coming in with a heavy bag and telling in considerable excitement how he had come across a vein near the entrance to the quarry with the calcite crystals, and how he had been ordered out by the unsympathetic and angry quarryman. He took me there once but we were refused admittance and years later when I tried again to find the place the quarry was inactive and nothing could be seen.

The specimens Rand managed to smuggle away were unique. They were parts of an open vein about three inches wide, the felsite walls coated with a thin layer of massive calcite upon which were planted large calcite crystals up to three inches across of a peculiar brown coloration shading into yellow with a velvety surface—not bright. Here and there were well formed crystals of white barite of much smaller size. This was the total mineral content but the calcite is not like any other I have seen and its peculiar habit and coloration give the crystals peculiar charm. It was certainly unfortunate that the vein could not have been more fully studied.

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DIAMONDS IN AFRICA

(Bureau of Mines **Mineral Trade Notes**, Dec. 20, 1946)

Angola (Portuguese West Africa).—In its years of operation from 1917 to 1945, inclusive, the Companhia Diamantes de Angola, commonly referred to as DIAMANG, has produced a total of nearly 11,275,000 carats of diamonds.

In 1907, diamonds were first discovered in the Belgian Congo and Angola in the region known as the Cassai Basin. Today this area is referred to as the Lunda region in Angola. The Lunda concession is in the extreme northeast corner of Angola between 7° and 9° lat. S., and 20° and 22° long. E., the extent of which is approximately 17,000 square kilometers.

The Lunda region was first opened by one of Portugal's most intrepid explorers and one of her last, General Henrique de Carvalho, who in 1886 led an expedition on foot from Lunda to the region. However, he was more explorer than prospector, and it was not until 1912 that the Portuguese first gave serious thought to the diamond-bearing deposits of this remote hinterland. It may be said that even then their interest was awakened or alerted by the bustling activity of their Belgian colonial neighbors, who, under the driving power of King Leopold I, were beginning to exploit the Congo. Therefore, as a direct result of the activities of Societe Internationale Forestiere et Miniere du Congo (FORMINIERE) in the Chicapa region and along the tributaries of the Cassai River, the Companhia de Pesquisas Mineiras de Angola (PEMA), was organized on September 4, 1912, for the purpose of exploiting the Lunda region for diamonds.

At this time there was still some doubt as to the exact boundaries of the Cassai Basin, and although the Berlin Conference of 1885 endeavored to establish definite lines, the area had never before been surveyed by either the Portuguese or Belgians. Although the joint Portuguese-Belgo boundary commission set out in 1902 to survey the area, it never reached Cassai River owing to tropical disease and inhospitable treatment by the native tribes, and it was not until after 1918 that a real alinement of the boundary was fixed satisfactorily by both Governments. Therefore, this may account for the fact that the Companhia de Pesquisas Mineiras de Angola was organized with a considerable share belonging to Societe Generale de Belgique. The other organizing partners were the Banco Nacional Ultramarino, the firm of Henry Burnay & Cia. (now known as Banco Burnay), both Portuguese; the Futalite Coloniale and the Banque de l'Union Parisienne, both French companies; and the American group of Ryan and Guggenheim.

On October 16, 1917, Companhia de Diamantes de Angola was substituted for the name of Companhia de Pesquisas Mineirars de Angola, and the company was reorganized with a registered capital of $80,000 with the six groups above mentioned still participating. Also, at this time Sir Ernest Oppenheimer and Salomon Barnato Joel entered the firm. Today 80 percent of the company is owned outright by Portuguese interests, with the remaining share in the hands of Belgian, British, and American interests. The registered capital of DIAMANG as of June 29, 1946, was listed as Escudos 179,300,000 (about $7,375,565 U. S. Cy.).

The new company made little progress until about 1921, at which time a concession contract was entered into with the Angola Government, granting exclusive rights to DIAMANG in the Lunda

region for a period of 30 years. Under this arangement DIAMANG is obligated to pay the Angola Government 50 percent of the annual liquid profits.

At present, 31 mines are exploiting the alluvial deposits in the Lunda region in the basins of the Chiumbe, Luembe, and Luana Rivers. The mines are divided in three groups known as Cassanguidi, Andrada, and Maludi. Diamonds have been found sparingly in other parts of Angola but not in sufficient quantity to justify commercial exploitation.

Open-pit mining is used by DIAMANG throughout its workings, and at present 39 pans are in operation, divided as follows: 6 of 10 feet, 23 of 8 feet, and 8 of 6 feet in diameter, all electrically operated, and 3 stream-operated pans each 8 feet in diameter. In 1944, 93 million tons, or 46,855,267 cubic meters, of earth were excavated, which yielded 1 carat to 4.5 cubic meters, or 9 tons.

Organized prospecting under the guidance of six field parties continued in 1945, and the results of their findings are considered very satisfactory. It is estimated at present that the Lunda region possesses enough known deposits to guarantee production for the next 25 years.

The Angola diamonds rank among the finest-quality stones found anywhere in the world. The majority of stones found in the alluvial deposits of Lunda are octahedral in shape, with faces well-developed. Crystals with curved faces (especially hextetrahedrons) and pitted faces have been found in appreciable quantities, and crystals with cube and dodecahedron faces have been found in smaller quantities. The octahedral crystals vary in color but usually range from colorless to pale shades of yellow, red, orange, green, blue, and brown.

The largest diamond thus far found in Lunda weighed 52.20 carats uncut. Other stones of excellent quality, weighing 35 to 40 carats, have been found, and the finest diamond yet unearthed was a rose-tinted stone weighing 17 carats.

The quantity of carbon or black bort mined in Lunda is relatively small.

The control exercised over the world diamond markets by the De Beers cartel, applies equally to DIAMANG, which disposes of its stocks through the Diamond Corporation, Ltd., of London. DIAMANG has signed a new contract with the Diamond Corporation, which is to run until 1950, under the terms of which DIAMANG will sell its entire production to the Corporation.

The turn-over in sales of stones during 1945 was the largest in the company's history, and in addition to the disposal of its entire 1945 production, its surplus stocks were greatly depleted. If the current demand for diamonds continues, it is predicted that DIAMANG will be able to dispose of its entire surplus and annual production as well. The future of DIAMANG naturally depends upon the health of the world diamond market; there is very little evidence at present that this market will cease to expand.

French Territories in Africa.—According to data prepared by the Direction des Affaires Economiques of the Ministere de la France d'Outre Mer, the principal French Territories producing diamonds are French Guinea and French Equatorial Africa. These are the only areas in which diamond production has been carried out on a commercial basis.

In French Equatorial Africa, prospecting commenced in 1930 and was resumed again in 1939. The chief deposits that have been located are in the regions of Haute-Sangha and Lobaye.

In French West Africa the only deposit known at present is that of French Guinea in the vicinity of Macenta. This is a prolongation of a deposit in Sierra Leone, but the French deposit is not as large in extent as that in Sierra Leone.

Investigations that have been made to date indicate that considerable potentialities for increased diamond production exist in French territories. Isolated stones have been found by accident in regions that have not yet been thoroughly explored. Important discoveries may be expected in the future, it is said, provided prospecting is carried out intensively.

The territories produce only a small part (1 to 2 percent) of total world

output, although it is expected that the percentage will increase in the future. The production has been in the following types:

	Percent
Bort	65
Industrials	20
Gems	15

Although the output in the French territories is reported to be approximately equal to that of Brazil, the latter area produces stones of better quailty, both gems and industrials. The French territories also produce stones of the quality known as "ballas," which are extremely hard and much desired in the industry, as well as stones known as "carbones" or black diamonds.

Diamonds produced in French West Africa both during and since the war have been sold through the London market as this area came under the authority of the Free French Forces at the end of 1940. Before occupation and since liberation, the producers in French Equatorial Africa have conserved freedom of action and disposed of their products in markets of their choice. Some sales have been made in Paris and the United States. It is reported that as a result better prices have been obtained.

Producers have insisted that conditions in the market return to what they were before the war; that is, that examination and grading should be carried out in Paris and sales should be made to prospects wherever they may be found. The only obligation imposed on producers is that exports be made in such a way as to provide adequate return in foreign exchange. In short, at present the French diamond-market producers are free to sell their products as they please, and the French authorities intervene only to asure that sales made abroad provide the French Government with a maximum amount of foreign exchange.
(Acting Commercial Attache Charles H. Ducote, Paris.)

South Africa.—The Premier mine, near Pretoria, and the Jagersfontein, near Kimberley, are being prepared for production. Additional equipment is being planned for increased mechanization and expansion of operations of the Consolidated mines of South West Africa.

From unofficial sources it is reported that diamond sales by the Diamond Trading Co. in 1945 reached a record of £24,500,000, compared with about £17,000,000 in 1944, and the previous peak of £20,000,000 in 1943. The daily press also reports that the important producers of rough diamonds, outside the Union of South Africa, have renewed the sales agreement that terminated at the end of the war.

According to a published interview with Sir Ernest Oppenheimer, chairman of De Beers, in the latter part of 1945, the total of gem diamonds available from all sources would not exceed £16,000,000 a year at current prices, and future sales of rough stones would have to be drawn almost exclusively from current output. The large demand for both gem and industrial stones in 1945 was met by the accumulated stocks held by the Diamond Corp., and it is understood that these stocks are almost exhau ted.

The De Beers Consolidated Mines, Ltd., called an extraordinary general meeting of shareholders on December 3, 1946, for the purpose of considering, and if it deemed fit, passing special resolutions—namely, a proposed merger of the De Beers with Consoliated Diamond Mines of South West Africa by an offer to exchange the 3,240,500 ordinary shares in the Consolidated Diamond Mines of South West Africa not held by De Beers Consolidated Mines, Ltd., for deferred shares in the De Beers Consolidated Mines, Ltd. It is propo:ed that the existing deferred shares in De Beers, with a nominal value of £2.10.0d. each, will be subdivided into 10 deferred shares of 5 shillings each. The exchange in shares will be equivalent to an offer of one of the existing £2.10.0d. shares in the De Beers Consolidated Mines, Ltd., for eight of the Consolidated Diamond Mines of South West Africa, Ltd., ordinary shares. The Board of De Beers also proposed to issue 3,500,000 new deferred shares of 5 shillings each.

The present capital of De Beers is £5,500,000, and the capital of Consolidated Diamonds is £5,240,000, a total of £10,740,000. The chairman of both companies is Sir Ernest Oppenheimer, who is also chairman of the Anglo-American Corp., which group has major interests in diamonds.

In the Chairman's speech at the Consolidated meeting in the latter part of 1945, it was stated that 80 percent of the capital of the Diamond Corporation, Ltd., was held by De Beers and 20 percent by Consolidated Diamonds, so that the merger of the two companies will mean that the Diamond Corporation will be entirely owned by De Beers.

According to company reports, the gross revenue of De Beers for the year ended December 31, 1945, was £9,000,000, or £2,982,00 higher than in the previous years, and gross profit was £7,523,000, an increase of £2,784,000 from 1944.

The revenue of Consolidated Diamond Mines, Ltd., for the year ended December 31, 1945, was £2,750,000, an increase of £849,000 from the previous year, and the working profit was £2,466,000, compared with £1,652,000 for the previous year.

(Minerals Attache William O. Vanderburg, Pretoria.)

Tanganyika.—According to the local press, 55,435 carats of diamonds valued at £BEA469,884 ($US1,910,736) were exported from Tanganyika in the first 7 months of 1946, compared with 75,132 carats valued at £BEA353, 178 ($US1,436, 163) in the first 7 months of 1945. The diamonds exported in the 1946 period were evidently much higher in unit value than for the corresponding period in 1945 and were approximately 10 percent of Tanganyika's total exports, ranking third in value.

Mining interest in the third quarter of 1946 was centered on diamond mines, especially on the Williamson mine at Mwadui near Shinyanga, which is in the north-central setcion of the Tabora district. The Tanganyika press states that Dr. John Thorburn Williamson, a Canadian, at one time senior assistant geologist of the Quebec Geological Survey, went to Tanganyika in 1934 to prospect. In 1941 he found that the diamond-bearing points in his claim centered in a pipe in Mwadui. This pipe, according to press reports, is considered to be eight times larger than any other in the world. Comments on the mine have been both voluminous and optimistic. Although it is believed that the mine must be rich, it is thought to be too early to evaluate the extent of its potential wealth, as exploitation thus far has been confined to the top gravel, and the pipe has not yet been touched.

(Vice Consul Robert B. Houghton, Nairobi.)

World's Deepest Borehole in Oklahoma

In the March, 1947, issue of *Rock and Minerals*, (p.206), it was announced that the world's deepest borehole was in Oklahoma. This was the Superior Well, located 5 miles north of Fort Cobb, in Caddo County, of western Oklahoma, and was being sunk for oil. The Superior well was started in May, 1946, and its depth, before the March issue went to press, was 16,935 feet.

We are indebted to Jay E. Gilkey of Oklahoma City Okla., for the following item which informs us that the Superior well has reached 17,236 feet in depth.

DEEPEST WELL'S PIPE IS STUCK

Mishap Halts Drilling in Fort Cobb Wildcat

Drilling operations at the deepest man-made hole in the earth ran into trouble the last weekend, Superior Oil of California announced Tuesday, with the crew at the company's No. 51-11 Weller, in NW NW NE of 11-8n-12w, wildcat north of Fort Cobb, in Caddo county, trying to free drill pipe stuck 25 feet off bottom, nearly 3½ miles below the earth's surface.

Present total depth of the deep venture is 17,236 feet, with pipe stuck at 17,211 feet. John Cody, general superintendent of Superior has come from Bakersfield, Calif., to supervise the work. The pipe became stuck last Saturday in the 5¾-inch hole, and crew has been washing over in effort to free the world's longest string of drill pipe.

The Weller is some 568 feet below the previous depth record set by a California operation.

Oklahoma City Times
March 18, 1947

WHEATLEY AREA MICROS

BY C. A. THOMAS
706 Church Street, Royersford, Penn.

Just what is left to find in worthwhile lead and zinc minerals at the famous Wheatley Mines depends on how easily the collector is thrilled or satisfied. Mineral collectors' tastes vary. Those who seek large clean beautiful specimens are apt to be disappointed. It is almost safe to say that there are no more large or even moderately sized specimens of anglesite or pyromorphite although with some luck the latter may still be found in sizeable drusy masses on rock. The Wheatley Lead Mines are at Williams Corner, just outside of Phoenixville, in southeastern Pennsylvania.

The writer visited this still interesting area many times at night with a portable Mineralight in search of fluorescent specimens. Although anglesite fluoresces best under long wave in a very satisfactory yellow, it will fluoresce a fuzzy lemon color with the Mineralight. Not all anglesite will react but for some reason it seems that where pyromorphite and anglesite are intimately associated in quartz cavities (with galena), the anglesite will not only be fluorescent but also will be beautifully crystallized, in some cases suggesting its isomorphic partner, barite, but even more lustrous and adamantine than barite.

Of course these crystals are tiny. Only a few cavities presented anglesite in good microscopic sizes. Where pyromorphite is found with anglesite it is to be noted that the former is from a lower limit in relation to mineral layers from the surface and that the anglesite is beginning to appear at this depth (average 120 feet). In a layer below this and to a further depth of 60 to 80 feet the famous large anglesite crystals were found . . . (and no doubt kept). At near the 200 foot level the anglesite again was observed in fine small crystals, associated with its parent galena which is in turn intimately found with sphalerite of a rich golden brown.

So it seems that if one would find good material one must dissect the small remaining much pulverized dumps at these diggings, layer on layer. The sulphides are found on top. Naturally one would and could expect to find good material if the dumps were turned upside down, but not necesarily so.

It developes then, that if a collector is enthusiastic about micro material Wheatley is the place to collect. Not only are the cavities plentiful (from much leaching) but are usually inhabited with things of beauty and mystery under a good microscope. Only a few localities in the world can boast of beautifully crystallized anglesite and pyromorphite in such perfect green hexagonal crystals. Some with pyramidal terminations and quite transparent, are also rare.

In one small quartz cavity, the writer found a group of really perfect flat square bi-pyramid wulfenite individual crystals of reddish-brown, almost pinkish-brown, with the visible or top surface badly in need of a shave. The exttremely minute beard or hair-like crystals stand straight up like young wheat and are grey with a hint of yellow. They are no doubt very minute individual pyromorphite, but could be the rarer stolzite.

Other glistening groups of pyromorphite contain small but perfect wulfenite crystals usually as individuals and perfect for microscopy. Subtranslucent pyramidal vanadinites in parallel groups between and encrusting pyromophite terminatons may be distinguished from the similar wulfenite. Poorly crystallized encrustations of orange colored vanadinite are unmistakeable.

Cerussite is rather common on old surfaces and in cavities with anglesite and galena. It is difficult to determine cerussite by viewing alone. Some are formed pseudomorphic after anglesite. These are usually subtranslucent in colorless crystals or of lead-grey color often pearly in luster but more often dull white. When these crystals are twinned, tending to form a "V" and with more than one "V" attached centrally to a somewhat

heavier crystal body they are more easily recognized for what they are. Some of them are almost ideally formed, and poor luck in breaking may be the only reason why some are not ideally perfect to the eye. Contact twins are common and show a definite contact line mid-way and slanting between two elongated crystals whose terminations are imbedded in opposite sides of a cavity. Some fibrous thin cerussite masses reach across small cavities. Some anglesite has this parallel fibrous appearance and a test with a Mineralight may disclose it as anglesite.

The fluorescence of tiny crystals is more easily observed with a Mineralight due to this lamp's low output of visible light. When anglesite is fluorescent and a doubt previously existed as to its identity, the Mineralight will clinch the matter and preclude the necessity of measuring small crystals optically; a trick for which most of us are not equipped.

Micro enthusiasts who thrill to quartz crystals with or without inclusions should like the clear, clean elongated crystals in Wheatley specimen cavities. These interesting sword-like crystals are very common—but not always clean and clear. Shorter, thicker quartz with fine clear terminations often contain silver-galena arranged almost symetrically. The galena inclusion are somewhat zirconoid, rounded or mere splashes and are rarely if ever perfect cubes. Ankerite in good light tan dolomitic form are found as inclusions in perfect quartz crystals, both being small, make interesting mounts.

Other interesting and beautiful quartz groups are found. Rather well formed quartz crystals (rare) are coated with a wavelength thickness of iridescence of a golden hue. These are truly beautiful groups. Clear uncrystallized quartz areas when near masses of pyromorphite or cuprite, or both, often look like clearest fire-opal. All colors of the rainbow come out of the depths of this type when turned in a good light under a lens. These areas are too tiny for cutting into gems.

Some cavities contain a lace work of very minute quartz crystals, often built up very attractively in the center of a cavity. These very small, clear, doubly terminated quartz crystals are interconnected and divergent, with open spaces between.

Very attractive pyromorphite groups when intermixed with clear, sometimes doubly terminated quartz crystals will show a tendency to translucency and as if mimicking the quartz, will even be terminated as is the quartz. And often, good clear pyromorphite will be terminated on both ends with a pyramid.

Cuprite is plentiful in the Wheatley area dumps. It is quite often capillary and very red and very often in combination with massive uncrystallized siderite and spheres which may be called cuprosiderite. Very often long glistening olive green pyromorphite crystals are found attractively arranged among black earthy spheres of melaconite, probably the end product of cuprite. When anglesite and cerussite crystallize in these black botryoidal masses they make attractive mounts. The most translucent and red capillary cuprite may possibly be termed chalcotrichite. Its stalactitic glistening reddish hair-like structure is desirable especially if an iridescence appears on the more embryonic or short stalactites. The writer has a single quartz crystal, very minute, with still smaller transparent individual half spheres of what appears to be cupro-siderite, implanted on one side of the quartz crystal.

As this is being written the writer is using a list of minerals found at Wheatley as compiled by Benjamin LeRoy Miller, Professor of Geology, Lehigh University (1924). His list is complete and few other minerals can be found to make it more inclusive. One such the writer believes could be included although he has not confirmed it. It is hydrocuprite which was much talked about at various times since collectors first observed it at the Cornwall, Lebanon County, Penn., iron mine and called it "rare," probably meaning rare for that locality. It is not often found in the East. This chamois-like coating, found usually on a copper mineral, is to be seen as a thin botryoidal shell on uncrystalled cuprite. The orange-buff colored skin is seen to blend

right into the glistening red of the vein cuprite. It otherwise may be taken to be a highly colored limonite velvety coating similar to jasonite. Some of the hydrocuprite assumes a tinge of dull green.

Some mention should be made of the rare highly colored light blue masses which are rarely in crystal form and when they do project a small rudimentary crystal it appears to be calamine. This blue material appears to be too hard for blue barite, too blue for celestite and cerussite. If it proves to be linarite, then another mineral may be added to Miller's list. Blue gypsum which is very soft is found in cavities in siderite and goethite.

One solitary crystal of the very rare libethenite was seen interposed on quartz. It was similarly formed like dioptase but of a jade olive-green color. This specimen was accidently discarded.

The writer has occasionally observed perfect colorless cubes of fluorite in rusty cavities. Some cubes disintegrated at the touch of a needle, being hollow shells. Such specimens were not attractive.

A most recent find was an unusual show of thin disc shaped gypsum crystals of pure white pearly groups standing on edge. These show a phosphorescence after a charge with the Mineralight.

Hematite in dark red to black sharp edged crystals of high luster and sometimes iridescent like the famous Cornwall, England, variety, make excellent micro-mounts. This micaceous iron may be found at the Brookdale mine and in gullies in fields between the Brookdale and the Pethericks—Penn area. Waterworn nodules of this material is easily recognized in the banks and bottoms of wash-outs in the area.

Malachite and azurite are no longer plentiful in the area. Sphalerite is rather plentiful and occasionally minute yellow gemmy masses are seen under the lens. An eight pound mass of solid sub-translucent brittle sphalerite was recently dug out of a Wheatley dump by the writer and on the same trip a large solid mass of galena was unearthed at the old Phoenix smelter dump. None of this galena crystallizes in separate cubes although on fracturing, some cubes may be formed. Miller quotes reports of 120 ounces of silver to the ton of galena and an average of about 26 ounces. Peacock sheen is seen on weathered galena.

When ankerite and sphalerite are intimately associated there may be found a pearly white coating near and on sphalerite which this writer has mentioned before in these pages as being highly fluorescent under a Mineralight. The material reacts blue, has no after glow and is, at times, as, bright a blue as western hydrozincite. Where anglesite is associated with ankerite, sphalerite and galena this reaction changes to a yellowish blue and more intense, being brighter than western hydrozincite. Under the lens it all looks the same with ordinary illumination.

Pyrite should be mentioned. Rather beautiful groups of elongated cubes can be found infrequently in quartz and in quartz cavities. Some perfect cubes of a silvery luster may be gersdorffite.

The writer is indebted to Harold Poole who enlivened his interest in Microscopy, to B. L. Miller's *Lead and Zinc Ores of Pennsylvania,* and to Dr. Sam Gordon for his invaluable *The Mineralogy of Pennsylvania.*

Franklin, N. J.

Franklin, a nice little village in eastern Sussex County, in northern New Jersey, is noted for its famous zinc mines operated by the New Jersey Zinc Co. The village was settled sometime before 1800 and was first called "The Plains," from the flat lands of the area. Between 1808 and 1816, Dr. Samuel Fowler settled in the community, erected a number of buildings and renamed the settlement Franklin, Later, when an iron furnace was also erected, the name was enlarged to Franklin Furance which was carried along until 1913. In 1913 (some years after the furnace had been abandoned) the village was incorporated into a borough and the "Furnace" was dropped. The village is now called Franklin.

BLOODSTONE OR HELIOTROPE—MARCH BIRTHSTONE.

BY MR. F. BOILEAU AS REPORTED BY EDYTHE M. THOMPSON

(See, Pomona Valley Mineral Club under **Club and Society Notes** in this issue).

Bloodstone is one of the Cryptocrystalline varieties of quartz, hence it's composition is silica-dioxide. It has a gravity of 2.6 and a hardness of 7. Its crystal system is hexagonal but I have found no record of bloodstone crystals ever having been found. It is a subtranslucent, dark green plasma containing scattered spots of bright, blood-red jasper. The green color is due to chlorite and possible ferrous salts, and the red to hematite. The best quality bloodstones are dark green in color with the bright red spots small and uniformly distributed.

The bloodstone of ancient times was actually hematite; the name hematite coming from the Greek word "Haima" meaning blood. When found, its shape is often like a darkened globule of blood, and when rubbed against another stone in water, the liquid turns red. The Ancients believed that this strange mineral was blood from the ancient battlefields, hardened into stone. They believed that the dust from this stone would cure proud flesh and running sores, stop the flow of blood, and serve as an antidote for poisons.. The name Heliotrope, also applied to this stone, came from the Greek words meaning "Sun-turning," and refers to the old-time belief that the stone, when immersed in water, would turn the image of the sun to blood-red. The water was also said to boil and blow up the apparatus containing the magic mineral. During the seventeenth century in Europe, bloodstone was used as a remedy for tumors and dyspepsia.

The early church called the bloodstone "St. Stephen's Stone" and held it in great reverence. This was the modern bloodstone, which was believed to have had its origin in a dark green plasma or jasper which happened to lie at the foot of the cross at the time of the crucifixion, and upon which the blood of Christ fell, hence the red spots.

The church thus used the bloodstone as the medium for carved sacred objects. One representing the head of Christ, which is in the French Royal Collection in Paris, is so executed that the red spots of the stone very realistically resemble drops of blood.

Bloodstone is usually cut for sets in signet rings bearing crests or monograms, and for other small ornaments. Only the best quality can be used, and much of the bloodstone found, fails to meet the requirements because either the green matrix will be of a dull color, or the red areas will be too numerous or angular in outline.

Foreign Localities for Bloodstone

While bloodstone may be found in any locality where jasper occurs, practically our entire supply is obtained from India, especially from Kathiawar Peninsula, west of Cambay, where agates, carnelian, and chalcedony are obtained from the Deccan traprock. Other sources are Australia and Brazil. Some fine material has been found in several places in Scotland, especially in the basalt of the Isle of Rum. It occurs also in Siberia and in the Hebrides. The demand for high grade material is still greater than the available supply.

American Localities for Bloodstone

In the United States, the finding of good bloodstone is of rare occurrence; some stones of good quality have been reported from Newport Beach, Oregon, while less desirable material is more or less common in many Oregon localities. Some fine bloodstones have been found in Chatham County, Georgia. In Colorado, the stone has been reported as coming from near the South Fork and near Grand River. It also occurs as veins in slate at Blooming Grove, Orange County, New York. A fair quality of coarse-grained heliotrope is found in California. The so-called bloodstone—a combination of large red and green jasper—is quite common, sometimes found in large deposits, but usually the red areas are patchy and irregular, and fail to resemble "drops of blood on green stone."

ROCKS AND MINERALS OF MT. RAINIER NATIONAL PARK

BY TED DANNER
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One of the most beautiful of all western National Parks is Mt. Rainier. It is located in the west central section of the State of Washington and comprises an area of nearly 400 square miles. Forty-five square miles of this area is covered with permanent ice, forming some 26 glaciers radiating down on all sides of the extinct volcano, Mt. Rainier, which gives the park its name. The volcano is 14,408 feet high and snow-covered down to the 6,000 foot elevation the year around. Warm moisture-ladened winds from the Pacific ocean bring a large amount of precipitation to the area, especially the western portion of the park where the rainfall often reaches 140 inches or more during the year. Most of this rain occurs during the period from October to May and a lot of it falls in the form of snow. During the winter of 1945-1946 nearly 900 inches of snow was recorded at Paradise, elevation 5,500 feet, on the south side of the mountain.

Although collecting is generally prohibited in our National Parks, there is much of interest to the student of rocks and minerals, and while specimens cannot be packed out, information can be packed out without the labor involved with specimens. A very good idea is to consult with one of the ranger-naturalists or rangers stationed at various spots in the park to obtain information on places of particular interest to the student of rocks and minerals. Often times you will find one of these rangers a geologist by profession and he can give you much valuable information. The present park naturalist, Mr. Howard Stagner, is a geologist and he is stationed at the park headquarters at Longmire the year around.

Rocks belonging to four formations occur in the park area. The oldest rocks are altered shales and sediments belonging to the Puget Group of Eocene age. To the west, outside of the park area and in Puget Sound, the Puget group forms a thick series of carbonaceous, continental and brackish water sediments containing coal. In the park it outcrops in but two known areas, one about a mile from Longmire on the Longmire-Paradise highway, and the other along the Carbon River in the northwest corner of the park. Both outcrops are small and the sediments altered. Underneath the Puget and probably intruded into it occurs the Snoqualmie Granodiorite, a light colored granitic rock also believed to be of Eocene age. It is believed to be a southern extension of the Snoqualmie batholith. It outcrops in the bottoms of the deep glacial cut valleys radiating from the Mountain. It forms the base of the Tatoosh Mountains along the southern boundary of the park. On top of the granodiorite and intruded by it are several thousand feet of a conglomeration of volcanic rocks generally known as the Keechelus Andesitic series. Although this group of rocks differs widely in composition it is not readily split up into definite formations and therefore has been given the term, Keechelus series. Most of the rocks composing it are andesites. It is believed to be Miocene or Eocene in age, nothing definite as yet having been agreed upon by geologists. It may very well cover both of these ages. On top of all three of these is the hypersthene andesites from Mt. Rainier, termed the Mt. Rainier Volcanics. These are a group of flows, tuffs, and agglomerates of Pleistocene age derived from eruptions of the volcano when it was active. For a petrographic description of these rocks the volume written by Professor Howard Combs of the University of Washington; "The Geology of Mt. Rainier National Park," will provide the necessary data.

Mineralization has occurred along the contact of the Snoqualmie Granodiorite and the Keechelus Andesitic series resulting in minor deposits of chalcopyrite associated with arsenopyrite. These deposits were once thought valuable enough for commercial production and several prospects were opened along the Paradise river two miles above Longmire. Some

ore was mined but the ventures proved unprofitable. Other prospects were opened up on the northern side of the mountain and a road built into the property, but they too are abandoned today. The author visited the prospects near Longmire during the summer of 1946 but found only a few specimens showing minor amounts of chalcopyrite and arsenopyrite with some malachite and azurite as a result of weathering. Several shacks which were once the miners' homes are still standing and are private property. During the war, crews of high school boys, mostly from the East, were employed along the Paradise river in the Dept. of Agriculture White Pine blister-rust projects and combed the dumps for what little ore they contained. On the western side of the mountain the author found chalcopyrite in rocks on the moraine covered top of the Tahoma glacier indicating that somewhere the Tahoma glacier is gouging through ore bearing rock. No record of any prospecting in this area has been found. It is extremely rugged and not easy of access.

The Tatoosh Range as before mentioned, forms the southern boundary of the park. Several peaks in this range rise above 6,000 feet and one of these, known as Pinnacle Peak, is a favorite for beginners at mountain climbing. A very good trail goes almost to the top but from there on mountaineering skill must be put into play. It is a two mile hike from Narada Falls on the Longmire-Paradise road. Guides at Paradise frequenty take parties of tourists to the peak. Just a few hundred yards west of Pinnacle Peak a smaller peak, known as Plummer Peak, presents a very easy ascent. Along the faint trail leading to the top of Plummer Peak occurs an interesting deposit of specular hematite. The hematite is in the form of plates about half an inch in width and very thin, coating joint cracks near the contact between the Granodiorite and Keechelus. The exposure is on a steep slope and much of the surface rock is in the form of talus. Some of the blocks of large size are coated with these plates of hematite and are very attractive. A couple of yards beyond this outcrop there occurs large pieces of rock made up of tiny hornblende crystals with some quartz and limonite. Where they are exposed to the air the crystals are shiny and needle-like but when a piece is lifted off the ground the under side seems to be almost massive hornblende and very dull. The weathering agents of this altitude act as sort of a polishing machine. Well formed quartz crystals, cloudy and coated with limonite, are fairly abundant.

An interesting occurrence of chalcedony is found in the morainal material of the Nisqually river valley near the terminus of the glacier. The Nisqually glacier terminates within .8 of a mile from the Longmire-Paradise highway about five miles from Longmire. A trail has been constructed to near the terminus of the glacier but the way is rough and tiring. An excellent glimpse of a glacier in action is obtained here. The U-shaped valley is very apparent and the muddy Nisqually river rushes from under the ice a full-born river. As the ice melts back on a hot summer day, boulders and rocks of all sizes melt from it and fall into the river below. Among these rocks are numerous pieces of a reddish breccia-like andesite from somewhere up on the mountain, and coating this rock are thin seams of a reddish and white chalcedony. Often the chalcedony is coated with tiny quartz crystals. Interesting nodules are also found although they are quite small. Some of the chalcedony, particularly the white specimens, fluoresce a pale green under the short-wave ultra-violet lamp. A wonderful cross section is exposed just below the glacier in the valley. It shows the Snoqualmie Granodiorite with the Rainier volcanics resting on top of it. Small valleys are exposed in the Granodiorite with the flows of andesite dipping down into them and completely filling them. They might be called fossil river valleys. The Rainier andesites are very remarkably columnar in this locality and some of the columns are twenty feet high and perfect in form.

Also of interest are the mineral springs found at Longmire, the park headquart-

ers. They are found near the Nisqually river and are scattered over a meadow several acres in extent. Before the park was established, their finder, James Longmire, developed the area into a resort. He built the first road in 1891. After the park was created the use of the springs for medicinal purposes gradually ended and today they are only curiosities. Many of the springs contain considerable iron as evidenced by their bright red color. Carbon dioxide gas bubbles up through the water in quantities sufficient to suffocate birds and small rodents who venture down into their slight depressions after water. The mineral waters taste much like carbonated water and with flavoring are fair to taste. Hot mineral springs are found in the southeast section of the park at the Ohanapecosh entrance and one may bath in them at a small fee.

If you are in Washington State on your vacation, Mt. Rainier should be included in the places you visit. After all, is it not the largest volcano in the United States and does it not also have on its flanks the largest deposit of that mineral, ice, to be found in the United States The scenery, the gorgeous wild flowers, and the many animals make it a haven for the nature lover.

Reference on Geology

*Combs, Howard, "The Geology of Mt. Rainier National Park" Univ. of Wash. Publications in Geology, Vol. 3. No. 2, pp. 131-212. July 1936
*(At present out of Print)

A ROCK BALUSTRADE

BY N. H. SEWARD

Melbourne, Australia

Between our garden and garage there is a sunken path, and to support the garden, I built a brick wall, about 20 feet in length and about 3 feet high.

Then I wondered how I could ornament the top of this brick wall, and in pondering it over, a happy idea occurred to me. I decided to cover the top with all sorts of ornamental stones, of which I had a large quantity in my garden tool room. So having a day's holiday, I set to work early in the morning.

The first thing was to mix some cement, and then to sort out all kinds of stones, which comprised Azurite, Malachite, Galena, Quartz, and various red, white and other coloured pebbles, and last but not least, some odd rough pieces of Australian Opals and Opal Chips.

I carried out the job in sections of about 3 feet each, with some special ornamentation at the end of each section, spreading the cement thickly over the bricks and then embedding the various coloured rocks and specimens in the cement.

The whole job took me the whole day long, and proved most interesting throughout, especially as I had to use a certain amount of artistic thought in selecting say a piece of blue Azurite here, a specimen of Green Malachite there, some pieces of white or yellow Quartz in other places, with red and other coloured stones intermingled. Over the whole mass I sprinkled a few handfuls of Opal Chips, adding colour to the scheme.

By evening the job was done, and being a hot day the cement soon set hard. When I got the garden hose and gave it a sprinkling of water, the various colours sparkled forth in a verp interesting and attractive manner, and I felt well pleased with my day's work.

My crowning recompense, however, came when my wife and one of my daughters came down to see the result of my labour and when they exclaimed "How beautiful" and "Isn't that simply exquisite," you can imagine that I felt well rewarded for my long day's work.

GEOLOGY 108 YEARS AGO

BY ANTHONY THURSTON

Box 104, Swansea, Mass.

A few days ago I secured at a second-hand bookstore a copy of a geological report published in Rhode Island during 1839. I purchased the book in hope of finding records of lost or forgotten mineral locations, but soon found that it was a treasury of lost and forgotten ideas.

For instance, its title gives the almost forgotten full name "State of Rhode Island and Providence Plantation," by Charles Jackson. Following this a paragraph states that the General Assembly shall appropriate two thousand dollars for an Agricultural and Geological Survey of the entire state. A miniature sum in these days of millions.

The first section, called the introduction, is most interesting for it shows the extent of geological knowledge scarcely more than 100 years ago. The geological scale is given as follows; primary rocks, which consist of gneiss, granite, and mica slate, which were believed to consist of the solidified remains of molten upheavel at some time in the past. Next there is mention of a group of transitional rocks, but they are rather vague and I was unable to place a limit on them, except that they do contain fossils. It seems rather doubtful that the author himself knew what these were. One sentence at this point seemed remarkable to me for it states:—"A numerical division will doubtless be found preferable to any of those fanciful names, which have lately been proposed for certain groups of strata of the transitional series, and it is evident that the names Cambrian and Silurian proposed for certain groups in England will never be regarded in this country as appropriate names for our rocks."

Following the transitional series Mr. Jackson used the term secondary for all succeeding formations up to the Tertiary, these he states abound in all types of fossils. The Tertiary is set off, perhaps in its proper place, and it is followed by the Diluvial which consists of all the loose and unconsolidated material. I believe from reading the report that the author had an idea, that there might have been ice incorporated with the deluge, for on several occasions he says "water or ice." However, in a discussion of the Diluvial he speaks of it as a great flood from the north, and assumes that it might have been Noah's Flood.

Igneous rocks seemed to be considered younger than the consolidated sediments for on many instances one reads such terms as, "the incandescent mountains bursting through superincumbant strata," or "the granite appears bursting through the slate." While actually the granite rocks in this region are probably older than Cambrian time.

It is also interesting to note the change in prices for products from 1839 to the present. At that time there were two more-or-less thriving mining districts in the state, the coal mines at Portsmouth and a few limestone quarries in the region about Woonsocket. The coal was considered equal to the Pennsylvania anthracite, although today all the shafts are abandoned due to its poor quality. Mr. Jackson calculated that there would be 37,800,000 tons of coal in the Portsmouth mines, but due to the uncertain thickness of the beds his estimate is probably too large. This coal sold for about $8 a ton top grade in Providence and $2 or $3 for lower grade.

Limestone quarried and burned at Harris Rocks in Smithfield was estimated as follows for 350 casks of lime:

Quarrying and carting to kiln	$ 75.00
Attendants to kiln	32.00
40 cord of wood	180.00
350 casks	158.00
Carting to Providence	70.00
Rent of lime kiln	20.00
Total	$535.00

Lime sold at $2. per cask—$700.

Profit $165.00

Another occupation which was carried on to less extent was the making of whet-

stones in Woonsocket. The stones were 10 or 11 inches long, 2 inches wide and half an inch thick. Those of first quality were sold at 65c a dozen.

Right of quarrying	5c	per	dozen
Quarrying	8c	"	"
Labor	10c	"	"
Grinding	6c	"	"
Boxing for market	9c	"	"
Sand for grinding	1½c	"	"
Carting	¾c	"	"
Transportation to New York or Philadelphia	2c	"	"
Cost	42½c	"	"

These are really strange figures in these days but they bring out sharply the change and progress of 100 years.

Reference

Agricultural and Geological Report of the State of Rhode Island by Charles Jackson, 1839.

A NATIONAL STOCKPILE OF STRATEGIC MINERALS

BY DR. W. B. S. THOMAS

(The Old Retread)

All over this globe there are United States Embassies and in most countries one can find at these American Embassies a "mineral attache." It is his business to keep the finger on the pulse of the country from a mineral standpoint and in the spirit of lend lease act in an advisory capacity. These are the men to look up when you travel.

Some countries have welcomed the American mineral attache and used him freely. He sees all there is to see from a mining standpoint in that country and is regarded as a friend offering help. In some other countries his presence is regarded as a necessary evil. There are some very good posts in the diplomatic service and some are not pleasant. In some countries we are hated.

During the recent World War II tour of the world, the Old Retread encountered one mineral attache who spoke words of wisdom off the record. His post was one of the finest appointments in the service; he was a top flight mining engineer.

He puzzled at the policy of these United States. The example of tungsten ore is a simple illustration of how lobbies and pressure politics defeat the long range welfare of the public. We bought tungsten from South America. Our Senators from the tungsten producing states raised their hands in holy horror. Why import tungsten ores when their constituents had tungsten properties to develop? Why?

So we dig up our tungsten, we pump our oil from the ground blindly believing in Eternal Providence and an unending source of supply in our country in our time! We poured it into the have-not countries.

His advice (and he felt his a voice crying in the wilderness) was to buy up from foreign sources all the tungsten we could—to establish a stock pile against the day that the greatest manufacturing nation on earth needed it. As long as we have our mined tungsten in stock piles, we have mineral wealth and resources. As soon as the mines sell all we have and there are no new found mines, then our ability to control the price is lost. There is some sense in nationalization of the soil but more sense in a National stock pile of strategic minerals.

The Germans came to Maine before World War II with tongue in cheek. They found beryllium in large amounts thrown aside at mine dumps in the form of useless beryl. This was ideal ballast for sailing vessels, it was heavy and because of the shape did not tend to shift. Of course we fell for it and Germany had one of the largest stock piles of beryl in the world. The idea of beryllium-copper alloy had just become important—springs which could flex a million times without tiring seemed necessary. And pure beryllium was needed for an atomic bomb and the field of the beryllium alloys had not yet been scratched.

War II found our beryllium industries with a few hundred tons on hand, with thousands of tons of beryl in the hands of neutrals who dared not sell to us because it was already sold to one Adolph Hitler who could not take delivery He controlled the price!

INGERSON ON THE TEMPERATURE OF FORMATION OF QUARTZ

BY CHARLES A. BELZ

While the subject of liquid inclusions has been thoroughly studied by numerous investigators, and excellent descriptive papers written almost a hundred years ago, their existence, except as a curiosity in the character of a visible moving bubble, has received but scant attention on the part of the average amateur mineralogist. That such minutae can be of substantial importance in the study of mineral genetics was ably demonstrated by Dr. Earl Ingerson of the Geophysical Laboratory of the Carnegie Institution of Washington, at the Nov. 7, 1946, meeting of the Philadelphia Mineralogical Society. Dr. Ingerson's topic was "Estimates, from Liquid Inclusion, of Temperatures of Formation of Vein and Pegmatite Quartz." Dr. Ingerson, while in Brazil had ample opportunity to investigate vein occurrence, direction of flow, orientation, temperature of formation, and other related phases of quartz deposits.

By way of a back-drop to his subject, Dr. Ingerson showed lantern slides of some of the deposits visited, notably Piaus with its crystal-paved side-walks, Cristalina; Itapore, the setting for Munchausian tales of crystals 18 feet long yielding 40 tons of quartz, substantiated however by photographic evidence. These slides show clearly the random way in which crystals occurred in what was described as "pre-Cambrian schists." There seems to be no discernible rhyme or reason in their orientation,—a definite mining procedure cannot be planned, and as a result, mining is haphazard. Claims are small, and crudely divided from each other by strings. All labor is manual, no mechanical equipment of any description is used in most mines except for pumping water.

Since most of the usable crystals were found in quartz veins rather than in the pegmatites, the formation of these veins was given intensive study. The device of using liquid inclusions as temperature indicators was first developed and used in 1858 by Sorby. The presence of cavities, filled or partly filled with liquid, visible or of microscopic size, is an extremely common occurrence. Suitable specimens for temperature studies naturally are more readily found among those of microscopic size, since naturally they are more numerous. The technique for temperature determination is simply described as "heating the specimen until the bubble, or vapor phase disappears,—the temperature, at which this occurs, is corrected for pressure to find the temperature at which the specimen, and therefore the parent vein was formed." The corrections due to pressures at the time of formation require merely a simple mathematical computation, if the more difficult problem of estimating these initial pressures has been solved.

Justification for such sweeping conclusions is claimed on the basis of the following theory: In the process of crystal growth in a mineral bearing mother liquor, the premature juncture of certain crystal faces may form a cavity trapping some of the liquid.

A drop in temperature will cause a contraction of the liquid with a consequent creation of a vacuum. Evaporation from the surface of the liquid will thereupon fill the vacuum with water vapor in sufficient quantity to exert a pressure normal to that temperature.

Continuation of temperature decrements will cause continued evaporation until at room temperature, the liquid will have a certain volume and density, the vacuo will have a certain volume and vapor density, a saturation of water molecules so to speak, and the inclusion will be in a state of equilibrium, normal to that temperature.

Now if the process is reversed, and the temperature is increased the liquid will again entirely fill the space of the cavity and at the instant of this occurrence, it should have the same density and should be at the same temperature that prevailed at the time of formation.

However, at the time of formation of the quartz, the liquid in which the crystals

were growing was under great pressure, (and this may easily have been as much as 1000 atmospheres). A given quantity of liquid was compressed to occupy less space, and conversely a given volume of space would enclose more liquid.

Reheating of the specimen in the laboratory, would cause a disappearance of the vapor phase at the "cavity filling" temperature, but the vein formation temperature would not be reached until the original pressure within the cavity would be restored. These initial pressures at vein formation being unknown, they must be estimated from considerations including weight of overburden, geological topography, and all phases of structural geology, and is a matter of no small difficulty. Corrections due to pressure amount from 45° to 90° C.

Dr. Ingerson was careful to point out that estimates of temperature of vein formation from inclusions are not to be considered as sole evidence and in themselves infallible, but rather as important factors together with such evidence as the appearance of the vicinal faces, the relations of phantoms to external faces, the existence of mineral inclusions such as Tourmaline, Rutile or Brookite—all of these to be used in the construction of an equation that requires more good judgement than mathematics for its solution.

LEMHI COUNTY, IDAHO, A ROCKHOUND'S PARADISE!

BY G. ELMO SHOUP
Salmon, Idaho

Winter is now on the downhill slide. Expectations of an early spring and an interesting mining summer are in store for this part of Idaho (Lemhi County in the central part of the State). Plans of mine owners and prospectors are high—for some it will be the first summer since their return from the war, others will renew interest in again doing some development work which they must do this year in order to hold their claims.

The war brought interest to Lemhi County as it did to many other counties of the State and the finding of new minerals this summer will be shared by many collectors. Among some of the many interesting localities of Lemhi County are the Ima Mine, in the Blue Wing District, a large tungsten producer of the last few years; the large fluorite deposit in the Camas Creek section which has developed into a safe and reliable producer for the future; and the cobalt and nickel lodes in the Blackbird and Blue Bird districts. Then there are our gold placers, gold and silver veins, lead, zinc, and copper deposits. But then, not only are our ores attracting attention, but in addition we have other minerals such as garnets, opals, petrified woods, topaz, tourmaline, and zircons.

Truly an interesting summer faces all rockhounds of Lemhi County, Idaho, and those who may pay our localities a visit!

WURTZITE IN WASHOE COUNTY, NEVADA

BY HATFIELD GOUDEY

Early in 1945 in the Commonwealth Mine, Galena Creek, Washoe Co., Nevada, the writer collected specimens showing minute crystals of the rare hexagonal zinc sulfide, wurtzite. The specimens were obtained in a high-grade stope above the 300 level.

As collected, the specimens consist of rich masses of sphalerite with a little arsenopyrite and are traversed by thin, partially open seams of dolomite. On being split open the dolomite seams reveal curved crystals of dolomite, sphenoidal chalcopyrite and occasionally shining black acicular crystals of wurtzite up to 2 millimeters long. The wurtzite gives microchemical tests for zinc, sulfur and iron. The character of some of the zinc mercury thiocyanate crystals developed in testing indicates a small amount of cadmium. In transmitted light under the microscope, the crystals are deep reddish-brown, anisotropic with parallel extinction.

In the same mine in a crosscut on the 300 level, minute, sharp brilliant arsenopyrite crystals were found thickly studded in the gangue. These are of especial interest to the micro-mount collector.

HOBBY GROWS INTO PROFITABLE JEWELRY BUSINESS

BY HELEN TUCKER

Daily Times-News—Burlington, North Carolina

Did you ever wish that you could have seen one of the ancient jewelry makers as he went through the tedious process of making, cutting, and setting exquisite and delicate stones all by hand?

Charles Hopkins does just that.

In a petite work shop in his apartment in Burlington, North Carolina, Mr. Hopkins, during his leisure hours, makes rings, bracelets, ear rings, and other pieces of jewelry by hand.

Under the bright light suspended over five shelves built up from the wall of the tiny work shop is an odd-looking collection of files, scissors, lead blocks, all kinds of solutions, and instruments for cutting stones and decorating jewelry.

Mr. Hopkins began this unusual hobby during the war when he was on a troop transport in the Pacific. In the long weeks between 5 invasions in which he participated, he remained on uninhabited islands with "plenty of time on my hands and nothing to do." It was then that he got the idea of making bracelets and watch bands out of aluminums from Jap planes and Australian coins, using only a small hammer and file.

"At one time I was delayed for 73 days on an island, and if it had not been for my newly acquired interest in making jewelry I would probably have cracked up mentally. I had never seen any made before, and I had no books to read or anyone to tell me how it was done, but I resolved that if I ever got back to the States again I would learn the whole process thoroughly," he said.

And the beautifully designed jewelry which he now makes in his little work shop is ample proof that he did learn the profession thoroughly.

After coming back to the States, Mr. Hopkins was stationed in New York for a while. He lived in Greenwich Village, where he became acquainted with a man who specialized in hand-made jewelry. From him Mr. Hopkins learned of books and tools which would help him in his fascinating pastime.

From New York he went to England where he had an opportunity to study silver, and during the next year he made trips to France, Italy, and Egypt. In these countries he looked up the native silversmiths from whom he got many profitable ideas on the art of making jewelry by hand.

In Naples, Mr. Hopkins bought a supply of the world famous cameos, and in Egypt he found quaint scarabs which he put into ring settings.

While in Egypt he met two Greeks who owned a jewelry store. In the back of the store was a work shop where they made the jewelry which they sold. Over cups of peculiar tasting tea, another specialty of the two Greeks, Mr. Hopkins discussed the process of jewelry making with them.

"I learned much of the trade from them," he said.

At the end of the war Mr. Hopkins went back to North Carolina and resumed his work with the Public Health department in Graham, but he continued making jewelry as a hobby.

First he bought cut stones for settings and began to study gems. Now, however, he buys rough gem material from which he cuts and polishes the stones himself. Among his equipment he has gem-grinding wheels, sanding discs, and a diamond saw blade.

Although making jewelry started as only a hobby, it has proved to be a very profitable pastime for Mr. Hopkins. When people admired the unusual rings and bracelets which he made for his wife, requests began to pour in. Now he not only sells his jewelry locally, but also in New York, and he has a representative who sells for him in Cleveland.

"After learning the process of making jewelry, the problem is design; and it is boring to copy other people's work," Mr. Hopkins said.

He strives for uniqueness in designing his jewels; therefore, the ideas which he uses are original, and each piece of jew-

(Continued on page 338)

Charles Hopkins and A Corner of His Lapidary Shop.

WORLD NEWS ON MINERAL OCCURRENCES

(Bureau of Mines **Mineral Trade Notes**, Jan. 20, 1947)

1. METALS

Copper

Hungary.—Before the war, the State-owned Recsk mine in the Matra Mountains northeast of Budapest was the only active copper producer in Hungary. Copper deposits were reported to have been discovered near Szekesfehervar in 1936, but no information regarding them are available.

Gold

Hungary.—Most of the gold and silver output in Hungary before World War I came from Transylvania. These mines were lost to Hungary after the war, again became a part of the country in 1941, and by a recent treaty have been restored to Rumania.

Iron

Swaziland.—It is reported that systematic prospecting in a potential iron field near Havelock has indicated a possible reserve of over 15,000,000 long tons of ore averaging 49 percent Fe in one small part of the zone.

Japan.—Japan, although deficient in raw materials for the manufacture of iron and steel, became one of the leading steel producers of the world by building plants in the Home Islands and importing large quantities of coal, iron ore, scrap iron, pig iron, and semifinished steel, states Theodore L. Johnston, scientific consultant, in Report 50, of the Natural Resources Section, GHQ, Supreme Commander for the Allied Powers (SCAP).

Japan produced some iron ore, but most of it was imported. Imports from Korea were continuous and reached a maximum of 760,000 metric tons in 1941; Manchuria aupplied minor quantities. The Dungun, Lankao, and Kemaman mines in British Malaya were the largest source of supply up to 1941. Three mines in the Philippines also contributed over 500,000 tons annually during the 7 years before 1941. After 1941, the Ryuen and Hainen mines in north China supplied most of imported ores. Over 80 percent of all ores consumed up to 1942 was imported. Production from domestic mines increased as imports decreased and reached a maximum of 4,368,000 tons in 1944. Of the total domestic ore produced during 1925-45, two principal mines accounted for approximately 70 percent—the Kuchan limonite mine in Hokkaido and the Kamaishi magnetite mine in northeastern Honshu. Other smaller deposits of magnetite, hematite, and limonite accounted for the remainder. In addition to the iron ores, appreciable quantities of iron-bearing beach sands and pyrite calcines were used during the latter part of the war.

Korea.—The iron and steel industry of Korea was built and controlled by the Japanese to supplement Japanese production. Records show that iron ore was first produced at the Sanei mine in 1909. In 1918 the first pig iron and steel plant was built in Kenjiho. Expansion of the industry was rapid after 1930, reaching peak production in 1944, when 3,387,000 metric tons of iron ore were consumed and 628,000 tons of pig iron and approximately 100,000 tons of steels ingots were produced. During 1925-45, Korea produced about 20,000,000 tons of iron ore, approximately equal to iron ore produced in the home islands for the same period. About 74 percent of the iron ore mined during 1925-45 came from five mines north of latitude 38° N. Of these five, the Mosan mine, near the northeast Manchurian border, although not opened until 1936, became the most important producer. The mine is reported to contain 200,000,000 tons of magnetite averaging 38 percent iron. This ore is ground to 150-mesh and is magnetically concentrated to 56 percent iron at the mine. Hematite or limonite are produced at the other mines.

Manchuria.—Since 1905, when the coal mine at Penshihu was first opened, exploitation of coal and iron deposits and erection of processing plants have grown into a large industry, which was developed, operated, and controlled by Japan until the end of the war in August 1945. The principal iron-ore deposits are in

Liaoning Province in southeastern Manchuria. Large quantities of coal, limestone, dolomite, and fire clay are available. Plants were built at Anshan, 50 miles south of Mukden, and at Penshihu, 30 miles east of Ansha. Both plants are near large deposits of iron ore that contain large reserves of low-grade ore and fair reserves of high-grade ore.

While the ore at Anshan is a mixture of hematite and magnetite and that at Penshihu is magnetite, the ores have three features in common: (1) Both are hard and dense; (2) both contain large quantities of fine grains of silica intimately mixed with the iron oxide; and (3) both are low in sulfur and phosphorus. Beneficiation, in an effort to remove silica before smelting, was practiced on about half of the ore mined. Treatment consisted of coarse and fine crushing of ½-inch, then wet grinding to 150-mesh in ball and rod mills in closed circuit with classifiers. Concentration was by wet magnetic separation.

The Showa Steel Works was established in Anshan by the Japanese-owned Southern Manchurian Railway in 1916. Plans at that time called for a production of 1,000,000 metric tons of iron and steel annually. Although two blast furnaces were completed in 1919, normal production was not possible for several years, as difficulty was encountered in beneficiating the low grade ores. American and German methods were tried, but the Japanese finally developed a process for economically beneficiating the ores. Although the plant was expanded, production did not approach the original planned capacity until 1933. At that time the company was detached from the Southern Manchurian Railway and became the Showa Steel & Iron Works, Ltd., which in turn was merged into the Manchurian Iron & Steel Works, Ltd., in 1944. Expansion and development of the industry at Anshan paralleled growth of the industry in Japan. American engineers and equipment played an important part in its growth. Peak production in 1943 was equal to 80 percent of the pig iron produced at Yawata. Thereafter production declined, owing to shortages of coal, manganese ore, spare parts and repair material, and skilled and unskilled workmen; scattering of industrial power; air raids; and shortage and decline in quality of iron ore.

Iron ore for the Anshan works was obtained from a group of mines 10 to 30 miles east and southeast of Anshan. Ore was mined by open cut and underground methods, crushed to 4 inches, and screened at the mines. Both high-grade and low-grade ores were mined and separated into lump and fines. The high-grade lump ore was sent to blast-furnace storage bins and the fines to sintering and briquetting plants; the low-grade lump ore to the beneficiating plant, followed by sintering and briquetting, and fines to the sponge-iron (Luppe) plant.

Most of the coal for the coke ovens at Anshan was obtained from the Fushun, Penshihu, and Pei Piao mines, but during the last years of the war large quantities also were obtained from northern China.

The Okura Mining Co. developed the iron mines at Penshihu. The principal iron mine at Miao ei Gou, 16 miles from Penshihu, consists of a mountain of low-grade magnetite in which two enriched zones of high-grade ore are found. In 1916, two 200-ton blast furnances were built at Penshihu and the first pig iron was produced. In the expansion program, a new mine shaft was sunk and two 500-ton blast furnaces were built at Kung Yuan, 2 miles from Penshihu, bringing the total capacity of 1,400 tons daily, or 511,000 tons annually. Plans for building a steel plant at Kung Yuan did not materialize.

Limestone for blast-furnace use was quarried at an adjacent quarry and transferred to the furnace bins by belt conveyor. Dolomite is also reported to be nearby. Coal mined at Penshihu is mixed with other coals in a ratio of about three to one.

Lead and Zinc

Peru.—Production of lead in 1946 should equal the 57,664 tons produced in 1945. The cave-in at one of the Huaron mines has prevented a greater output of lead in 1946. Zinc output will also equal the 1945 output. The increased

output from the Volcan mines has been offset by a decrease in the output of the Huaron and San Antonio Esquilache mines. Export figures show that more zinc was exported in 1946 than in previous years, but this is not a correct indication of production. Owing to lack of transportation facilities during 1943-45, large stocks of zinc concentrates accumulated at Peruvian ports. Part of this accumulation was shipped during the latter part of 1945, but on January 1, 1946, 50,000 tons of concentrates were awaiting export. During 1946 most of the remaining stocks together with current production has been shipped.

Compania Minera de Sayapulla, a Peruvian company, has reopened the old mines at Sayapulla, in the Department of Cajamarca, and has developed enough lead-zinc-silver-cadmium ore to warrant construction of a 100-ton daily-capacity flotation plant. The Banco Minera is constructing a 100-ton daily-capacity flotation plant at Huachacolpa, in the Department of Huancavalica, designed to treat lead-zinc ores from a number of small mines in the district on a customs basis. The Picasso Brothers have been developing the old Caudalosa silver-lead mines in the Castrovirreyna district in the Department of Huancavalica. Enough ore is reported to be available to justify the construction of a 150-ton daily-capacity flotation plant. (Minerals Attache Carrel B. Larson, Lima.)

Manganese

Hungary.—Before the war the only producer of manganese in Hungary was Grof Zichy Bela Urkuti Banyamuvek R. T., with mines at Urkut about 6 kilometers east-southeast of Ajka. Other deposits of manganese are found at Eplenyi and in the Bukk Mountain area.

Rumania.—According to the British press, a manganese mine said to contain 10,000,000 metric tons of ore has been discovered in southern Rumania.

Mercury

Chile.—There were no exports of mercury from Chile during the third quarter of 1946. Production of mercury reported by Punitaque, the only mercury producer, during the quarter was 5,276 kilograms. (Vice Consul William F. Penniman, Jr., Santiago.)

United Kingdom.—The Metal Bulletin of London states that Messrs. Elder, Smith & Co., Ltd., of Australia and London, had been appointed the sole selling agents throughout the British Empire for Mercurio Europeo, the Italo-Spanish quicksilver combine. The appointment is understood to be the outcome of a meeting in November in Switzerland between representatives of the principal Spanish and Italian mines, with the exception of the Idria mine in Italy, which, as it is in disputed territory, could not be expected to operate within the combine.

Radio-Active Minerals

Madagascar.—On July 3, 1946, the Governor General of Madagascar decreed that all new rights for research and working of uranium, thorium, and glucinium ores are reserved to the State. (Commerical Clerk Jean-Jacques Lebrun, Tananarive.)

Radium, Uranium, and Mesothorium

Austria.—The principal refiner of radium-uranium ores in German-occupied Europe during World War II was Treibacher Chemische Werke, A. G., at Treibach, 18 miles north of Klagenfurt, Carinthia, south-central Austria. The plant was undamaged by hostilities. Operations by the company, which also produced ferroalloys and rare-earth metals, are described in "The Cerium Industry in German Territory, including Reports on Radium and Mesothorium," by R. Singer, et al., British Intelligance Objectives Sub-Committee Report 400, September 1945, from which this discussion was abstracted.

Radio-active compounds were first produced at Treibach in 1927, and the present radium refinery, employing 10 persons, began operations in 1934. Capacity is variously rated at 6 to 12 grams of radium annually, but output averaged only 3.5 grams yearly in 1936-44 owing to limited ore supplies. During the 9-year period, production of radium totaled 31,823 milligrams, of which 8,655 were from pitchblende, 7,413 from autunite, 250 from samarskite, 2,548 from ore residues, 9,069 from intermediate products,

2,579 from old carriers, and 1,309 from old neutron preparations. The pitchblende treated comprised about two-thirds of the ore mined during the war at Jachymov (Joachimsthal), Czechoslovakia.

Tin

Australia (Tasmania).—It is reported in the press that a new company, Pine Hill Tinmining Co., N.L., is being formed in Launceston, Tasmania, to acquire an alluvial-tin area at Renison Bell. A sluicing plant will be used to recover the alluvial tin. The area comprises about 100 acres adjoining the property of the Renison Associated Tin Mines, Ltd.

Netherland East Indies (Indonesia).—The Karimata dredge has been repaired and returned to Billiton. All but two of the dredges are now operating. It is reported that during August the Billiton Co., which is now operating two large dredges and three small ones, produced the equivalent of 460 tons of fine tin. In the first quarter of 1946, output was only 40 tons, which increased to 540 tons in the second quarter, and during the third quarter operations were at the rate of 1,400 tons. Output on Banka is reported at the rate of 250 tons of fine tin a month. Production on Banka was resumed in June 1946.

The Klappakompit mine, the only deep tin mine in the Netherlands East Indies, has been damaged to such an extent that its restoration is not possible at present.

World.—World mine production of tin is estimated at 94,000 tons in 1946. Estimates by countries follow:

Estimated world mine production of tin in 1946

	Long tons
Far East:	
Burma	300
China	2,000
Malaya	9,000
Netherland East Indies (Indonesia	7,000
Siam	1,700
South America	41,500
Africa	26,500
Other countries	6,000
	94,000

(Statistical Bulletin, International Tin Research and Development Council.)

Vanadium

Peru.—Production of vanadium in Peru will be less in 1946 than for many years, owing to the exhaustion of the higher-grade ore and the difference in the character of the ore now being mined at the Minaragra mine. The company has closed the old mill and is now treating all the ore in the new plant, which was built with funds advanced by the United States.

II. INDUSTRIAL MINERALS

Diatomaceous Earth

Chile.—Small quantities of diatomaceous earth were produced in 1946 and for local use and exportation to Argentina. In the first 9 months of 1946 exports totaled 70 tons. (Vice Consul William F. Penniman, Jr., Santiago.)

Glauconite

United States.—Glauconite or greensand is a product of the activity of the Globigerina ooze, an organism still active, mainly in the Pacific. It is a potassium-iron-aluminum silicate used chiefly as a base exchange in softening water and as a potash fertilizer.

An interesting new use for the mineral has been developed in Colorado. A red sandstone of Pennsylvania age near the base of Pikes Peak at Manitou, Colo., contains layers and masses of glauconite, not in the usual loose form called greensand, but indurated as part of the sandstone It is slightly weaker than the main bright-red sandstone, and in masonry of the rough-hewn type it shows a mossy green color that gives the impression of a moss-colored wall. On a cut-stone surface, the green streaks are not so prominent and the appearance is less pleasing. Its use has therefore been generally restricted to rustic types of rough-hewn stone construction of houses, bridges, and stone fences. It has been used with good effect in some of the older structures in Colorado Springs. (Oliver Bowles, Bureau of Mines, from data supplied by O. C. Ralston.)

Gypsum

Dominican Republic.—Gypsum is being mined in the Province of Barahona,

and some exports have been made. The gypsum is of good quality and therefore it is in demand by neighboring countries as a cement retarder. During the first half of 1946, 993,397 tons were shipped to San Juan, Puerto Rico, priced at about $4.25 per short ton. During October 1946, a shipment was being held for Colombia awaiting the call of a Colombian ship. (Senior Economic Analyst Robert J. McArdle, Trujillo.

Precious and Industrial Stones

Madagascar.—During the first quarter of 1946, Madagascar shipped to France 62 net kilos of the second series, 1,730 kilos of the third series, and 706 kilos of the fourth series of precious stones, and 7,350 net kilos of the second series and 803 of the third series of industrial stones. (Commercial Clerk Jean-Jacques Lebrun, Tananarive.)

Pyrite

India (Mysore State.)—As a result of geophysical and other prospecting operations conducted by the Mysore Geological Department, a new source of pyrites has been found near Chitaldrug, about 150 miles from Bangalore. It is said to be capable of meeting the needs of the sulfuric-acid industry in South India.

The surveys have indicated the existence of extensive deposits of sulfides, principally massive pyrites, containing 50 percent of sulfur. In addition to meeting the demands for sulfur in South India, the deposit may be a source of iron ore for the blast furnaces of the Mysore Iron & Steel Works at Bhadravoti.

The Geological Department of the Government of Mysore is now engaged in intensive prospecting under the supervision of the Director of Geology, B. Rama Rao, and B. Ramachandra Rao, geophysicist.
(Consul Roy E. B. Bower, Madras.)

Quartz Crystal

Madagascar.—In the third quarter of 1946, quartz crystal was shipped to France as follows: 269 net kilograms for optical and piezo electric purposes, 116 kilograms for cutting purposes, and 1,658 kilos for fusing. (Commercial Clerk Jean-Jacques Lebrun, Tananarive.)

Salt

Czechoslovakia.—The situation in the salt industry in Czechoslovakia has changed radically since the close of World War II from conditions existing in the last three decades. Before the war, Czechoslovakia had three mines that produced considerable salt in Sub-Carpathia Ukraine, now ceded to Russia. There is now, therefore, only one mine in the Republic. This is in Solnohrad, near Presov, Slovakia, production from which was estimated to be 5,000 metric tons in 1945. This quantity far from meets the requirements of the country, which are said to be about 80,000 metric tons.

Following the end of World War I, the boundaries of Czechoslovakia included the deposits of rock salt that extended from the area around Presov along the Carpathian Mountains through Ruthenia. They are a part of the large deposits of Poland, Rumania, and Transylvania. The principal mines worked in that postwar period were at Akna-Slatina, in the Marmaros district of Ruthenia, where annual production was about 122,000 metric tons. The output of evaporated salt from brine raised from flooded mines near Presov was more than 7,000 tons per annum. Subsequently, other mines were brought into operation.

During this period the known salt beds at Akna-Slatina were found to be about 560 feet thick and had been proved over an area of about 900 acres, with reserves reported at about 60 million tons. The deposits were said to contain salt of 99.6 percent purity.

Denmark.—Discovery of the first known occurrence of rock salt in Denmark was announced recently by the Danish-American Prospecting Co. of Copenhagen. According to information supplied by the company, exploratory work, consisting of a gravity survey, seimograph prospecting, and core-drilling operations, had been carried on in Denmark for almost 2 years before the German invasion on April 9, 1940. Work was suspended shortly after the invasion, and

actual field operations were not resumed until after May 1946. On June 3, 1946, a test hole in the northwestern part of Jutland, about 5 miles north of the town of Holstebro, pierced pure rock salt at a depth of 806 feet on an anomaly previously discovered by geophysical methods. The well was carried to a depth of 1,517 feet in clear rock salt, and further drilling of several other test holes indicates the presence of a considerable body of rock salt. Exploratory work is being continued and the drilling of a deep test is already planned.

In the past, Denmark has had to import all of its salt requirements, and the discovery is therefore of great importance to the economy of the country. Further importance is attached to the fact that the discovery proves the existence of salt domes north of the German border, which had previously been considered the northern limits of the Permian salt basin in which the oil fields of northwestern Germany are situated.
(Foreign Service Clerk Bernice Hemmingsen, Copenhagen.)

France.—France has inexhaustible salt resources. Large deposits of rock salt are found in the Departments of Meurthe-et-Moselle, Moselle, Doubs, and Haut Saone in the northeastern part; in Jura in the middle eastern part bordering on Switzerland; in Haute Garonne in the middle southern border of the country in the Pyrenees; and in Basses Pyrenees in the southeast corner and Landes, immediately north of it, both bordering on the Atlantic Ocean.

United Kingdom.—Salt deposits in the United Kingdom are principally in Cheshire, Worcestershire, Durham, and Carrickgergus (northern Ireland). The most important is the Northwhich deposit, Cheshire, which consists of two beds of rock salt, each about 90 feet thick, separated by about 39 feet of marl, the top bed being about 200 feet below the surface. According to the report of the annual meeting of the British Society of Chemical Industry, July 1936, rock salt averages about 95 percent purity, is opaque, and a brownish-white color owing to admixed earthy matter.

A Salt Union, Ltd., was founded in 1888, with a capital of more than £3,000,000, for the purpose of consolidating the undertakings of the various salt proprietors of the United Kingdom with a view to eliminating competition. Sixty-three salt works in England and Ireland were brought into the organization, making it the largest salt proprietor in the world. By an exchange of shares in 1937, Imperial Chemical Industries, Ltd., acquired a proportion of approximately 60 percent of the total salt-manufacturing capacity of the United Kingdom.

During World War II, certain controls were imposed on the salt industry by the British Government, such as the Essential Work Order, which applied to other industries also. The British Ministry of Supply cooperated with the salt industry in the equitable distribution of salt for food and industry because of the shortage of the product. After the war, control was gradually released. No Government control is imposed upon the salt industry for tax purposes or otherwise.

Mining was originally the chief method of winning salt, but subsequently trouble was experienced through ground water breaking into the mines, which slowly dissolved roofs and supports of galleries and caused the collapse of most of the mines. In the course of time the flooded mines became immense reservoirs of natural saturated brine, which is now exploited easily by pumping.

III. MISCELLANEOUS INFORMATION

India

Formation of mineral bureau.—A mineral information bureau is to be established in Calcutta under the India Department of Works, Mines, and Power. Its chief functions will be the dissemination of information relating to Indian minerals, fuels, iron ore and ferroalloy minerals, light-and base-metal minerals, precious metals, gems, minerals for chemical industries, industrial clays, sands, and miscellaneous minerals, their use and processing; to assist industrialists, laboratory tests will be carried out and technologists will be recommended for mine survey, geological survey, prospecting, and opening up of economic deposits.

LEAD IN AUSTRALIA

(Bureau of Mines **Mineral Trade Notes**, Dec. 20, 1946)

Australia.—In Summary Report No. 23, Mineral Resources of Australia, published by the Department of Supply and Shipping, Commonwealth of Australia, N. H. Fisher stated that the most important sources of lead in Australia are the Broken Hill Mines, New South Wales; Mt. Isa, Queensland; Captain's Flat, New South Wales; Read-Rosebery mines and the Mount Farrell mine, Tasmania.

Queensland

Mt. Isa mines, 603 miles by rail west of Townsville, were discovered in 1923 and acquired by Mount Isa Mines, Ltd., in 1931. Total production of lead bullion from Mt. Isa up to the end of 1944 was 478,910 long tons, of which the Black Star lode produced 80 percent and the Black Rock and Rio Grande lodes the remainder. Ore reserves were estimated at the end of 1944 at 7,116,740 tons averaging 8.6 perent lead, 8.5 percent zinc, and 7.7 percent silver per ton. Early in 1943, Mt. Isa discontinued its production of lead and zinc and mined only copper ore. The company anticipated resumption of lead-zinc production in 1946 and temporary cessation of copper ore.

Lawn Hill, in the Burketown district, produced 2,168 tons of lead from 1888 to 1927. Development of these deposits has been hampered by lack of transportation facilities.

Chillagoe-Herberton district, the second important lead-producing area in Queensland, produced 62,928 tons from 1883 to 1939. Lead production in the district and adjacent districts ceased with the closing of the State Government's lead and copper smelter at Chillagoe. The lead section closed in 1939 and the copper section in 1942. Among the principal producing mines were the *Girofla* and the *Lady Jane* at Mungana and the *Chillagoe Consols* mine near Chillagoe. Other localities contributing to the district's output were *Tartana,* 15 miles northwest of Mungana; *Redcap,* 3 miles northeast of Mungana; *Lappa Lappa,* 37 miles, and *Koorboora,* 31 miles west by rail southeast of Chillagoe; *Crooked Creek,* 18 miles east-southeast of Chillagoe; *Muldiva,* 15 miles south of Chillagoe; *Stannary Hills,* 12 miles west-northwest of Herberton *Orient Camp,* 13 miles west of Herberton; *Irvinebank,* 12 miles west of Herberton; *Montalbion,* 15 miles west of Herberton; *Silverfield,* 2 miles south of Montalbion and *Newellton* (Silver Valley), 9 miles southwest of Herberton.

Etheridge district. Numerous ore bodies have been worked in the Etheridge field, chiefly in the Georgetown-Forsayth area, 180 miles southwest of Cairns. A small quantity of ore has been obtained from other parts of the field and from the Oaks Goldfield. Total recorded production from 1897 to 1939 was 4,783 tons of lead valued at £115,056.

Ravenswood district, 60 miles south of Townsville, produced 7,582 tons of lead valued at £166,317 from 1880 to 1891. This output probably includes that from *Mount Wright,* 7 miles northwest; *Star River,* 80 miles north; *Sellheim River,* 70 miles south; and *Ukalunda,* 60 miles southeast of Ravenswood.

The *Charters Towers* gold field has produced 3,737 tons of lead derived from concentrates. A production of 322 tons is reported from the *Bowen* district, some of which may have come from Ukalunda. Lead ore has been mined in the *Kangaroo Hills* district, 65 miles west-northwest of Townsville; at *Mount Barker,* 55 miles west of Mackay: at *Bompa,* 48 miles south of Gladstone; at *Mount Prospect,* on the Cania gold field, 60 miles south-southwest of Gladstone; and at *Mount Shamrock,* 20 miles east of Gayndah.

Silver-lead ore was mined at *Indooroopilly,* in the Brisbane district, from 1919 to 1928. Total output was 1,795 tons of lead valued at £58,708.

Ore containing lead, zinc, silver, copper, and gold occurs at *Silverspur,* 8 miles east of Texas and 53 miles by road west-southwest of Stanthorpe. Recorded

production from 1900 to 1925 was 1,161 tons of lead. No work has been done since 1926.

Other Queensland localities from which small quantities of lead have been obtained include Gympie, Mount Perry, Rockhampton, Glenbar, Mount Coolon, and Clermont.

New South Wales

The most important lead producers in New South Wales are Broken Hill mines, Yerranderie deposits, and Captain's Flat. Total production to the end of 1944 is estimated at about 9,000,000 tons, more than 97 percent of which came from Broken Hill.

Broken Hill. Broken Hill is 699 miles west of Sydney by rail and 256 miles east-northeast of Port Pirie. The outcrop of the Broken Hill lode was discovered in 1883, and to the end of 1943, 60,000,000 tons of ore had been mined with an estimated lead content content of 8,774,000 tons. Known ore reserves, according to the annual reports of the cooperating companies—North Broken Hill, Ltd., Broken Hill South, Ltd., Zinc Corporation, Ltd., and New Broken Hill Consolidated, Ltd.—published in 1944 are 11,635,600 tons.

Captain's Flat, 23 miles south of Bungendore, was worked between 1884 and 1900 chiefly for silver, gold, and copper. Records of lead output are incomplete, but at least 1,500 tons were produced. The mine is operated by Lake George Mines, Ltd., and from 1939 to 1944, 71,500 tons of lead concentrates were produced. In 1944, 215,076 tons of ore were milled and 20,868 tons of lead concentrates containing 13,501 tons of lead were recovered.

Yerranderie mines are in the Burragorang Valley, 60 miles west-southwest of Sydney. No work has been done since 1938, but from 1900 to that date production was fairly consistent, and more than 26,800 tons of lead were produced.

Emmaville district. Small quantities of silver-lead ore have been produced from Webbs silver mine, 7 miles north of Emmaville, and from Webb's Consols silver mine, 11 miles south of Emmaville.

The *Conrad* mine at Howell, 13 miles south-southwest of Inverell, produced 166,700 tons of ore, from which 6,832 tons of lead were recovered from 1907 to 1912. Silver content of the ore is high.

At *Sunny Corner,* 17 miles west-northwest of Lithgow, lead was produced from silver-lead ore.

At *Leadville* the Mount Stewart and Mount Scott mines, 40 miles north of Mudgee, produced lead from ore containing 65 ounces of silver a ton and 5 to 40 percent lead.

The *Kangiara* mine, 12 miles northeast of Binalong railway station, has produced 7,250 tons of lead, nearly half a million ounces of silver, and more than 3,000 ounces of gold.

At *Cobar* a production of 5,358 tons of lead is recorded, presumably all from the Peak mines, 6 miles south of Cobar.

Condobolin district. From 1907 to 1924, lead ore was produced at Potter's mine, 3 miles north of Condobolin, and at Mineral Hill, 42 miles north of Condobolin. Total production was 1,480 tons from Condobolin and 1,566 tons from Mineral Hill.

Other localities noted for lead production are *Lewis Ponds,* 10 miles northeast of Orange; *Walla Walla,* in the Burrowa district, 20 miles north of Yass; *Bobadah,* 60 miles north-northwest of Condobolin; the *Kootra* mine, 6 miles north-northwest of Cootamundra; the *Costigan* mine near Tuena, 43 miles south of Bathurst; *Carboona,* 20 miles southwest of Tumbarumba; *Boro Creek,* 10 miles south-southwest of Tarago; *Buddigewer,* 12 miles southwest of Wyalong; *Bungonia,* 15 miles east of Goulburn; *Drake,* 24 miles east-northeast of Tenterfield; *Rivertree,* 35 miles north-northeast of Tenterfield; and *Boorook,* 20 miles northeast of Tenterfield; *Glen Innes; Hall's Peak,* 25 miles south of Hillgrove; *Milton* 35 miles south of Nowra; *Moruya; Mount Gabua,* 9 miles southwest of Emmaville; *Narrabarra,* 20 miles southeast of Barmedman; *Pye's Creek,* 10 miles northeast of Torrington; *Rosedale,* 7 miles notheast of Oange; *Spion Kop,* 15 miles northwest of Yass; *Tolwong,* 9 miles south-southeast of Marulan; and *Wool-*

garlo, 17 miles southwest of Yass.

Victoria

Small quantities of galena are found in the quartz lodes in most of the gold fields in Victoria and associated with complex sulfide ores in the Omeo, Bathanga, and Cassilis districts. The most important deposits of galena are in the *Buchan* district and at *Mount Deddick.* Total recorded production of lead ore is 799 tons.

Tasmania

Commercially important deposits of lead are confined to the western and northwestern districts, and the only producing fields are the Read-Rosebery and Mount Farrell. The Zeehan and Dundas fields and the Magnet mine have been important producers in the past.

Read-Rosebery. Electrolytic Zinc Co., Ltd., operates two mines, one at Rosebery on the Emu Bay railway, 71 miles from Burnie, and the other, the Hercules mine at Mount Read, 6 miles south of Rosebery. The Rosebery ore assays 21.3 percent zinc, 6.4 percent lead, 0.5 percent copper, 8.5 ounces silver, and 2.1 dwt. gold per ton. Ore at the Hercules mine, which is slightly higher-grade, is transported by inclined surface tramway and aerial ropeway to the mill at Rosebery. The lead concentrate produced at Rosebery is exported. A copper-lead concentrate, assaying 15 to 18 percent lead is sent to the Broken Hill Associated Smelters at Port Pirie. The zinc concentrate, which also contains lead, is sent to the electrolytic zinc plant at Risdon, after calcining at Zeehan, and the lead residue and dross obtained are shipped to Port Pirie for refining. Total production of the field up to 1944 is 102,355 tons of lead. The anuual output since 1936 has been 7,000 to 9,000 tons. Ore reserves on June 30, 1943 were estimated at 1,500,000 tons.

Mount Farrell. The Mount Farrell deposits are 6 miles northeast of Rosebery and connected to the Emu Bay railway by a spur line from Tullah siding. North Mount Farrell mine, which produced 46,974 tons of lead and 4,926,966 ounces of silver, ceased operations in 1932. The present Mount Farrell mine is an extension of the same ore zone. Total lead output from the Mount Farrell field was 71,386 tons to the end of 1944.

Zeehan, Production at Zeehan decreased steadily after 1909 and ceased in 1941, when the Montana mine was closed. Most of the lodes were worked to shallow depths only, and none was found payable below the 600-foot level. The ore assays 1 to 1.5 ounces of silver per ton for each 1 percent of lead. Total production from the field probably exceeds 200,000 tons.

Dundas. Many of the ore bodies in the Central Dundas field, 6 miles east of Zeehan, are similar to those of the Zeehan field. Lead ores have been the most important product, but the quantity of lead produced is not known. Little work has been done since 1913.

Magnet. The Magnet mine, 4 miles west of Waratah, produced 39,079 tons of lead and over 7,500,000 ounces of silver up to 1940, when operations ceased.

Other Tasmanian centers include *Round Hill,* 23 miles south of Ulverstone; *Mount Lyell;* the *Devon* mine, 29 miles south of Ulverstone; and the Heazlewood mineral field, 12 miles west-southwest of Waratah.

South Australia

Although all of the refined-lead output in Australia is produced by Broken Hill Associated Smelters at Port Pirie, the raw materials are obtained almost entirely outside the State. The total production of lead ore in South Australia up to the end of 1944 is 25,837 tons. Output since 1920 has been very small. The Glen Osmond district, 5 miles southeast of Adelaide, has been the principal producer, and apart from coal mines, the mines in this area were the first to be worked in Australia. Other localities where lead has been produced include *Mount Malvern,* 10 miles south; *Strathalbyn,* 31 miles south-southeast; *Rapid Bay,* 48 miles south; *Callington,* 45 miles east-southeast; *Robertstown,* 70 miles north-northeast; and *Riverton,* 56 miles north of Adelaide; the *Commodore* mine, 30 miles southeast of Mannahill; the *Perseverance* mine, 12 miles east of Olary;

Baratta, 55 miles northeast of Carrieton; *Ediacara,* 18 miles east of Beltana; *Duck Pond Hill,* 90 miles northeast, and *Ooloo Dam,* 60 miles east by north of Farina; and Cleve, 25 miles west of Cowell.

Western Australia

Deposits containing lead ore are widely distributed in Western Australia, but over 97 percent of the total output of 66,330 tons has come from the *Northampton* field, 30 miles north of Geraldton. Lead ore also has been produced at *Uaroo* in the Ashburton district, 80 miles southeast of the port of Onslow; near *Whim Creek,* 48 miles east of Roebourne, and at the Andover mine, 7 miles south of Roebourne West on the Pilbara gold field; at *Braeside,* 80 miles east of Marble Bar, on the Pilbara field at *Mundijong,* 25 miles south of Perth; and at Narlarla in the Kimberley district, 75 miles east of Derby.

Northern Territory

The estimated lead output from Northern Territory up to the end of 1944 is 2,561 tons, most of which came from the *Evelyn* mine, 22 miles northeast of Pine Creek. Lead also has been produced at the *Iron Blow* mine, 3 miles south of Grove Hill, and from several other localities in the Pine Creek and Grove Creek districts. The most recent production was in 1938 and came chiefly from *Winnecke's Depot,* 40 miles northeast of Alice Springs.

DUBUQUE LEAD MINES WAS FIRST SETTLEMENT IN IOWA

One of the earliest mines to be opened up in the United States were those in Dubuque, Iowa. In the earlier days of their operation they were not only the most important source of lead in the country but one of the most important deposits in the world.

For years the mines were worked for lead only but in 1880 zinc was mined for the first time.

The ores, which occur in the Galena dolomite, consist of the lead minerals, galena (the chief ore mined) and cerussite, and the zinc minerals, smithsonite and sphalerite, Barite, calcite, marcasite, and pyrite are also present in the mines.

Dubuque, a city of about 45,000 on the west bank of the Mississippi River, is in eastern Dubuque County, in eastern Iowa. The city was named in honor of Julien Dubuque, a French trader, who, with ten others, settled here in 1788 to mine the lead ores. This was the first settlement in what is now the State of Iowa.

According to Schoolcraft[1], to whom we are indebted for the first account of Dubuque's mines, the lead ore was discovered by the Indians, themselves, who dwelt upon the property. A paragraph from his report reads as follows:

"In 1780 a discovery of lead ore was made upon their lands by the wife of Peosta, a warrior of the Kettle Chief's village, and extensive mines have since been discovered. These were granted by the Indians to Julien Dubuque at a council held at Prairie du Chien in 1788, by virtue of which he settled upon the lands, erected buildings and furnaces, and continued to work the mines until the year 1810. In the meantime (1796) he received a confirmation of the Indian grant from the Baron de Carondelet, governor of Louisiana, in which they were designated the "Mines of Spain."

An excerpt from a letter dated Feb. 12, 1947, from S. E. Harris Jr., Geologist, of the Iowa Geological Survey, to the Editor of *Rocks and Minerals,* reads: "The lead-zinc mines in the Dubuque area have not been in operation since the First World War. Some prospecting and test drilling was done during the recent war by the U. S. Geological Survey and the U. S. Bureau of Mines, but no mining operations were undertaken."

[1]Schoolcraft, H. R., Narrative Journal of Travels, etc. Albany, 1821, p. 348.

The Amateur Lapidary

"LAPIDARY" or "LAPIDARIST"?

BY DE WITTE HAGAR
Past President of the Los Angeles Lapidary Society

There seems to be a great deal of confusion over the correct term to apply to a person who cuts and polishes stones. This hobby is growing at such a rapid pace that it would be a very good idea to arrive at a definite conclusion as to the correct designation of its devotees. I have never been able to understand why there was any question that the word "lapidary" was correct. We, here in America, accept Webster's Unabridged Dictionary as the supreme authority on words in our language. Then it would seem that all we need do in this instance is to consult that authority and put an end to the confusion and misunderstanding.

I have before me a copy of Webster's Unabridged Dictionary, published by G & C Merriam Company, Edition of 1943, which should be up-to-date enough to satisfy almost anybody. In this authority the word "lapidary" is defined as follows:

> Lapidary. Noun. 1. An artificer who cuts, polishes, and engraves precious stones and gems.
>
> 2. a. Formerly—a virtuoso skilled in gems or precious stones; a connoisseur of lapidary work.
>
> b. A treatise dealing with gems and precious stones.
>
> c. Jewelry.

(You will note that all but the first definition were FORMERLY used but that only the first definition is authoritative today.)

Now let us look at the word "lapidarist" which so many people are calling themselves. Webster states as follows:

> Lapidarist. Noun. A connoisseur of gems and precious stones and the art of cutting them.

All right! Let's look up "connoisseur." We do so and find as follows:

> Connoisseur. Noun. One aesthetically versed in any subject; especially one who understands the details, technique, or principles of a fine art; one competent to act as a critical judge of an art, or in a matter of taste. Connoisseur is often contrasted with "Amateur" or "Dilletante." It implies trained and discriminating judgement of what is rare or choice, especially in art; as a connoisseur of fine etchings, of fine bindings, of wines.

Very few amateurs in this hobby of cutting and polishing stones could, with any degree of accuracy, pose as connoisseurs, nor do I think that they would knowingly wish to do so They have been misled by the use of the term "lapidarist" by some people and in some publications. I have also heard it expressed that the word "lapidary" means the shop where such work is done and some people use it in that manner but there is no authority for that use. There is but the one definition for the word as a noun and where it is used as an adjective it must be used with another word (a noun), as, for instance, "a lapidary shop," " a lapidary Society," "lapidary equipment," "lapidary supplies." etc.

It surely seems that this point should be cleared up now and agreed upon—as there are no grounds for a difference of opinion—unless one refuses to accept Webster as the authority on our language and prefers to set up his own opinion instead—which seems a bit ridiculous after all.

The Societies should clear up this misconception and establish uniform use of the correct term. And I would urge that the various publications dealing with this subject aid in correcting this situation.

Club and Society Notes

Attention Secretaries—If you want your reports to appear in the June issue, they must reach us by May 20th—the Editor.

New York Mineralogical Club

American Museum of Natural History, New York, N. Y., Wednesday, February 19, 1947

The meeting was called to order at 8:10 P. M. Francisco Rosa and Orman Gregersen were elected to membership.

A temporary nominating committee was elected consisting of Mr. Weidhaas, Mr. Taylor, Mr. Trainer, Mr. Maynard and Mr. Stanton.

The principal speaker of the evening was Baron R. J. de Touche-Skadding who spoke on "The Agni Mani, Mystical Meteoric Gem of the Orient." The Agni Mani, or fire jewel, has been held in very high esteem in the Orient for at least 2500 years. It is a tektite, a highly siliceous glass of meteoric origin, found in several places in the East Indies and elsewhere. The material is amorphous and resembles obsidian but is found in places where there are no volcanic rocks. The Agni Manis found in Billiton, are strongly etched and bear no relation to the country rock. On Billiton the natives believe them to be "Seeds of Tin" and on finding one, bury it again so the tin mines will not become exhausted.

Throughout the Orient, the Agni Mani is credited with bringing the wearer riches and a long line of descendents.

Purfield Kent, Secretary

New Jersey Mineralogical Society

A regular meeting of the Society was held on Tuesday, March 4, 1947, in the Plainfield Public Library, Plainfield, N. J. The speaker was H. M. Paskow, of the William V. Schmidt Co., New York City, whose subject was "Gem Stones."

Boston Mineral Club

A regular meeting of the club was held on March 11, 1947, in the American Academy of Arts and Sciences, Boston, Mass.

The speaker was Dr. Cornelius S. Hurlbut, whose subject was "Corundum."

Colorado Mineral Society

A regular meeting of the Society was held on March 7, 1947, in the Colorado Museum of Natural History, Denver, Colo.

The speaker was Dr. Don B. Gould, whose subject was "The Geologic Past of the Pikes Peak Region."

North Jersey Mineralogical Society

The 22nd meeting of the society was held on March 13, 1947, in the Paterson Museum, Paterson, N. J.

The speaker was Peter W. Tyahala, whose subject was "Natural and Synthetic Gem Construction."

Los Angeles Mineralogical Society

Mr. Paul Mortimer gave the Society a very interesting and entertaining, illustrated lecture on "The History of Aluminum" at its regular February meeting. The theme of the lecture was that there are still many new horizons to conquer and it traced the history of aluminum from the time it was a very rare metal and museum curiosity, until finally it is being produced in enormous quantities. During the time of Louis XVI it was worth about $12.00 per pound whereas now it sells for about 20 cents. Aluminum as a mineral exists in great abundance upon this planet. Until John Hall, a metallurgist, began his memorial experiments in 1848 it also was one of the hardest to separate as an element or metal. The movie finished by showing some of the numerous uses for aluminum and what a boon its production has been to mankind.

One of O. C. Smith's new books on Mineral Identification was raffled off during the meeting and 3 door prizes (of minerals) given away.

On January 19th, seventeen cars filled with members of the Society motored to Mojave and Cuico where they dug feldspar crystals which were Carlsbad twins. Later some of the members went to Red Rock Canyon and collected some zeolites, and sand nodules.

A. G. Weigel.
Pub. Chm.

Springfield Mineralogical Society
(Springfield, Vt.)

A number of members of the Society visited the Peabody Museum at Harvard University, Cambridge, Mass., on March 1st, 1947. David Stewart, local club member now employed at the museum, acted as host and guide for the group. The large display of colorful minerals occupied most of the attention of the group. One of the most interesting displays, however, was fused desert sand from New Mexico where atom bomb tests were made during the war.

Akron Mineralogical Society

The first annual exhibit of the Society was held on March 20, 21 and 22, 1947, at the M. O'Neil Company, Akron, Ohio. Dazzling gems, rare and beautiful minerals, fossils, and jewelry craft were on display and attracted considerable attention.

The Central Iowa Mineral Club

A regular meeting of the Club was held on Friday, March 7, 1947, at the Des Moines Y.M.C.A.

The speaker was John Sanders, whose subject was "Fluorescence."

Charles W. Foster presents Robert C. Vance (left) a Certificate of the Mineralogical Section's appreciation of his leadership for more than 10 years.

Rochester Academy of Science (Mineralogical Section)

A high light of the January 9th, 1947, meeting of the Section was the presentation of a suitable engraved certificate together with a token gift to Mr. Robert Vance in commendation of his ten years of service as Chairman of the Section. Mr. David Jensen also received a gift in appreciation of his long term as Recorder. Mr. Chas. Foster, the new chairman, made both presentations amid the popping of flash bulbs as the event was recorded for posterity on film.

The main talk of the evening was by Mr. Walter H. Wright whose topic was "Enhancing your Mineral Specimens." He outlined ways and means of cleaning, trimming, working out choice crystals (mechanically and with acid), mounting for display, lighting, etc., and illustrated his discourse with appropriate specimens as well as actual laboratory procedure in acid usage.

Following this the chairman conducted a mineral auction. Each member was allowed to enter 5 specimens for auctioning and everyone had a chance to examine them before bidding started. A 5% tax was put on all sales for benefit of the club treasury. Since everyone spends about all they make it is a popular way of exchanging minerals.

At the February 13th meeting Mr. Russel Clark discussed his experiences while prospecting gold in northwestern Ontario. Mr. Clark has not only prospected by canoe, dogteam and airplane but he also has recently become superintendent of a group of mines; consequently he was able to give very interesting details as to how to plan a two months trip into the wilderness, run quick sample analyses, stake claims, record the claims, secure financial backing, establish a mining camp and fight mosquitoes. His talk was well illustrated with maps and specimens.

The Section meets at the Rochester Academy of Science, Rochester, N. Y.

Walter H. Wright, Recorder

Connecticut Valley Mineral Club

A regular meeting of the Club was held on Tuesday, March 4, 1947, at 8:00 P. M. in the Museum of Natural History, Springfield, Massachusetts.

The speaker was Miss Elizabeth W. Olmsted assistant Professor of Geology, Smith College, whose subject "The Alaskan Highway."

During the past summer, Miss Olmsted obtained permission from the United States and Canadian authorities to drive to Fairbanks, Alaska, from Canada over the Alaskan Highway. At that time permission to travel on the highway was granted only to persons who were absolutely self-sufficient and would be dependent on no one for food, shelter, gasoline and spare parts. Miss Olmsted was the first woman to obtain such permission. She described her experiences on the highway and showed some exceptionally fine kodachrome slides of geologic and scenic interest.

Mary E. Flahive
Secretary

Charles W. Foster presents David E. Jensen (right) an Eversharp pencil in appreciation of his work as Recorder of the Mineralogical Section, Rochester, N. Y.

Pomona Valley Mineral Club

POMONA VALLEY MINERAL CLUB met March 11, 1947, in the Chemistry Building of Pomona College, Claremont, Calif. After a short business meeting several new members were welcomed into the Club. Mr. F. Boileau, Club member——presented a very interesting paper on "Bloodstone or Heliotrope—Birthstone for March."

Mr. Don E. Wight, guest speaker for the evening, gave a comprehensive and detailed chalk talk on "Gem Testing Instruments and Their Uses." He displayed and explained the uses of such instruments as the dichroscope, polariscope, eye loops, refractometer, diamond scales, hardness points, Moh's gauge, diamond bezel angle gauge and diamond scope.

A question period followed, and many of us were amazed to learn of the intricate and accurate tests that can be made to determine the identity of stones; also whether a stone is genuine or artificial.

After a vote of thanks to Mr. Wight—door prizes concluded the program.

Edythe M. Thompson
Pub. Chm.

American Gem Society
(Northern Ohio Guild)

A regular meeting of the Guild was held on March 11, 1947, in the Hatch Building, Western Reserve University, Cleveland, Ohio.

A lecture by Dr. Henry F. Donner, of the University, was the main feature. His subject was "Specific Gravity."

Los Angeles Lapidary Society

Mr. George Marcher, certified gemologist of Los Angeles, gave a very instructive talk on lapidary art in general and the brilliancy of faceted stones in particular, stressing the need of properly placed facets and depth of the different gems, at the March meeting of the Los Angeles Lapidary Society.

Program chairman, Jessie Quane, is conducting a short quiz program each month. The members showing unusal polished materials are asked about their methods of cutting and finishing of the gems.

The field trip for March was to Mule Canyon, a well known agate field near Barstow, California.

E. Grace Peters (pub. Chairman)

Cincinnati Mineral Society

A regular meeting of the Society was held at the Museum of Natural History, Cincinnati, Ohio, on February 19th, 1947. Mr. Ralph Dury, curator of the Museum, exhibited some excellent geodes collected from the famous Keokuk locality which was followed by a discussion on their nature and origin. Mr. Ralph Clark then showed some interesting agate specimens which he collected while on a camping trip along the north shore of Lake Superior. Plans for a spring field trip were made—the locality to be a quarry in southeastern Indiana where some unusual calcite crystals were obtained last year by Mr. James Gibbs.

Frank P. Atkins, Jr.

Mineralogical Society of So. California

Mr. Ernest W. Chapman, an eminent Mineral collector, spoke on "The Minerals of Broken Hill, New South Wales" at the March 10, 1947, meeting of the Mineralogical Society of Southern California.

The average mineral collector thinks of opal in connection with Australia, and rightly so, for the opal fields of Australia are the most famous in the world. At Broken Hill however, no opal occurs and specimens of other rare and beautiful minerals claim attention.

Australia is a country rich in natural esources and these have been used for the benefit of the country and its people. Many of the early discoveries here of mines and mineral wealth read as breathtaking and often hearbreaking stories. There were the two Morgan brothers who, following the lead of an old prospector Sandy Gordon whom they grubstaked, after many false alarms at last came upon the famous red mountain located upon land owned by Sandy's own brother. Finding traces of gold, they were able secretly to buy up the property for practically nothing. From this red mountain, which they named Mt. Morgan, they took some $126,000,000 in gold and copper leaving its original owner bitter and disillusioned.

The discovery of Broken Hill was hardly less exciting. Australia, the leading producer of wool, devotes its central semi-arid area to the raising of sheep. At Gibbs Station, sheep herders, or station hands as they were called, had noticed a long low outcrop which they called Broken Hill. Tin having been found in the vicinity, they organized in 1883 a little syndicate of seven station hands and sank a shaft. They found nothing of value, however, and running out of money reorganized and increased their number to fourteen. This time they found some promising ore and another man becoming interested was able to buy into the syndicate for about $750. Soon after they broke into a deposit of Cerussite and within six years this original investment was worth some $6,250,000. Up to 1933 Broken Hill had produced $688,000,000 in lead and silver.

Many fine specimens of many rare and beautiful minerals were found during the early history of Broken Hill. Unfortunately, outside interest in preserving these specimens did not awaken until much later. It is mostly through the efforts of George Smith, an early mine foreman who built up his own private collection of these specimens, that we have any of these minerals available at all. The Commonwealth of Australia purchased from his widow his collection for $50,000 and it is the duplicates from this collection at the British Museum and the Museum at Sydney, Australia, that make up the most of the material available from this interesting locality today. Work has long since progressed below the oxidized area where the most beautiful crystallized specimens were found and has been confined to the sulphide ores which do not yield the varied and beautiful minerals incidental to the oxidized zone.

Mr. Chapman listed some sixty minerals from this locality and said there were probably more. Many of these minerals were very rare, many most beautiful, and at least three new to science were discovered at this locality—Marshite (iodite of copper), Willyamite (sulphantimonide of nickel and cobalt), and Raspite (a new form of lead tungstate). Mr. Chapman illustrated his interesting discussion of this locality with his own fine collection of Broken Hill minerals with Mr. Earl Calvert and Mr. Jack Rodekohr showing other specimens from their collections. Mr. Kenneth N. Reed displayed some beautiful Australian and Virgin Valley opals.

Mr. J. M. C. Johnson exhibited a most interesting fossil collection and Mr. William Bateman a beautiful group of cabochons cut from agate collected along the Yellowstone River in Montana.

Coming closer to home again, Mr. Victor Robbins led a collecting trip on March 16th to the Winchester Quarry where magnesite, enstatite and tremolite are some of the minerals to be found.

Pauline A. Saylor
Covina, California

East Bay Mineral Society

The program for the month of April, 1947, will consist of:

April 3rd: Mr. C. L. Mills of the Oakland School Department will be the speaker. His subject "A Trip through Eastern Canada and the Eastern Seaboard."

April 17th: The Guest Speaker, Dr. Austin F. Rogers, Professor Emeritus of Mineralogy at Stanford University, has choosen as his subject "50 Years of Mineral Collecting."

Both of the above meetings will be held in the Auditorium of the Lincoln School, 11th and Jackson Streets, Oakland, Calif.

May 3rd: The Annual Dinner—the big event of the year—will be held in the Park Boulevard Clubhouse, Newton and Park Boulevard, Oakland.

Mr. L. J. Hostetter, 4034 LeCresta Avenue, Oakland, (Phone Ke 3-5065), is Dinner Chairman.

Harold C. Mahoney,
Corresponding Secretary

Mother Lode Mineral Society
(Modesto, Calif.)

A regular meeting of the Society was held on Feb. 28, 1947, at the High School, with our new president presiding.

After a short business session, the program was turned over to the speaker of the evening, Mr. R. O. Diedrick, a teacher of mineralogy from Oakland, Calif., who gave us a most interesting talk on the "Borate Minerals of California." Mr. Diedrick displayed a number of specimens of different borates during the course of his lecture.

We gained five new members at this meeting bringing our total membership up to 78.

Mrs. Lois Wemeps, Sec.

Queens Mineral Society

A regular meeting of the Society was held on March 10, 1947, at 8501 118th Street Richmond Hill, L. I., N. Y.

Mrs. William Biren, of the Geology Department at Brooklyn College, spoke on the "Mineral Wealth of the Dependant non-self governing Nations." Mrs. Biren has been making a special study of this timely subject by attending meetings of the United Nations. She emphasized the mineralogical importance of areas many of which will be placed under temporary trusteeship councils by the U. N. Such areas include those now under British influence, such as Greece, parts of Asia Minor, India, Burma, Ceylon, Pacific Islands, parts of Africa, etc. Also those under Soviet influence such as, Austria, Hungary, Roumania, Bulgaria, Finland, Jugo-Slavia, part of Korea, etc. Those under French influence such as, the Ruhr, parts of Africa, Indo-China, New Caledonia. The areas under American influence are quite limited being confined to a few unproductive islands in the South Pacific.

The timeliness of the subject aroused the liveliest of discussion by many members of the club. It was brought out that the location of deposits of importance was only one factor to consider. The degree of freedom of access to these deposits under the decisions of the United Nations Councils would be the real determinant of the future economics of nations dependent on specific sourced of supply.

Members were reminded to get in touch with Mr. Ernest Maynard, before the end of the month, to secure tickets for the TENTH ANNUAL DINNER to be held early in April. The featured speaker will be Mr. Arnold Hoffman, author of a new book, "Free Gold." Movies of Paracutin's Eruption will also be shown. Guests are welcome.

Mrs. Edward Marcin reported on the exhibit of fluorescent minerals put on by the Society at the Hearn's Hobby Show durng February. The exhibit attracted wide attention from several thousand spectators. Many letters were received as a result expressing interest in further information about mineral topics. The exhibit received the award, "Special Honorable Mention." It was suggested that next year the Society sponsor a mineral exhibit in which all local mineral clubs in the New York area might enter.

William Stadler
Secretary

Nebraska Mineralogy and Gem Club

The Annual meeting of the club was held on Tuesday evening, February 25, 1947, at the Paxton Hotel, Omaha Nebraska.

The following officers were elected:
President:—Sharpe Osmundson; Vice-President, A. B. Nau; Sec. Treas., Mrs. Bertha C. Minardi. Board members chosen were: J. L. Freeman and E. R. Long, of Omaha; and C. D. Hutchens and Adolph Jensen, of Council Bluffs.

Pacific Mineral Society

At the Pacific Mineral Society meeting on March 14th, 1947, at the Chancellor Hotel in Los Angeles, Calif. Mrs. Ella Arciniega gave one of the most intersting and instructive talks the Society has heard for some time. The subject was "Crystallography in the Laboratory" and Mrs. Arciniega brought laboratory equipment and chemicals to perform her magic of making synthetic crystals of copper sulphate, potasium dichromate, silver and others. To those who had studied chemistry it was a review and reminder of school days; to the novices it was fascinating magic. In only a few minutes she raised a garden of beautiful "flowers"—the kind that gophers, snails and other pests cannot destroy—a chemical garden in water glass. After her demonstration, some of the crystals she made were viewed under binocular microscopes which a number of the members brought.

Mrs. Arciniega is Vice Principal of the Fairfax High School in Los Angeles.

On Sunday, March 16th, the Society had its regular monthly field trip. There were about fifteen cars of eager rockhounds, led by Mr. E. B. Bingham. We met at the Solamint Store—a typical country general merchandise store, with unique and comical advertisements plastered all over the outside front wall. At 9 A. M. Mr. Bingham led us on the Soledad Canyon Road to the entrance of the tunnel, where we found pink orthoclase. Mr. Bingham also pointed out the fault in the nearby Pole Canyon. Going a short distance farther, some of the nimbler ones went down and over into Bear Canyon and brought back some nice specimens of andesine, ilmenite and chlorite. Then the caravan went to Tick Canyon, where the question arose, "When do we eat?" After lunch and renewed strength, a hike to the old borax mine produced colemanite, howlite, probertite, ulexite, zeolites and variegated jasper. By 3 P. M. everybody thought they had put in a good day's work, so we started for home, tired in body, but refreshed in mind and soul.

The new officers of the Society are:
President—O. C. Smith;
1st Vice President—J. F. Underwood;
2nd Vice President— Harold Eales;
Secretary—N. L. Martin;
Field Trip Chairman—R. H. Milligan
Directors— E. B. Bingham and N. H. Currie

Mrs. O. C. Smith
Publicity Chairman

Proposed Indiana Society

A preliminary organizational meeting was held Friday, March 21st, 1947, at 7:30 P.M., in the Cropsley auditorium at the Central Library, Indianapolis, Ind. Those interested in joining the society should contact Mr. M. E. Jasperson, 2243 Central Ave., Indianapolis, 5, Ind.

North Country Mineralogical Club

The February 1947, meeting of the Club featured a showing of microchemical slides by Mr. Arthur Sandiford, who discussed the uses of chemicals in identifying minerals, demonstrating the action of reagents on silver, lead, tin, zinc, cobalt, and copper.

The March meeting was spent on a discussion of mineral collections, led by the president, William R. Ellsbury, Consideration was given to the various possible types of collections, and to methods of securing, labelling and housing specimens. Plans were discussed for our first field trips, set tentatively for April 20th,, weather permitting. In this connection, we talked over the things to be taken on a field trip, as well as some of the means for determination of minerals. Since ours is a new club, with many of us definitely amateurs, this program proved very valuable. We have begun compiling a list of mineral locations within driving distance of Plattsburg, New York, as goals for future field trips.

Any mineralogists visiting in this locality will be cordially welcomed at meetings of the club and on any of our field trips.

The Club meets the 2nd Thursday of each month in the lecture room of the Plattsburg Public Library, Plattsburg, N. Y.

Gertrude E. Cone
Secretary

New York State Geological Asso.

The 19th Field Meeting of the Association will be held May 9-10, 1947, at C.C.N.Y. in celebration of C.C.N.Y. Centennial 1847-1947. The program for the first day will be an exhibition of latest geological textbooks, equipment, and supplies—field trip to the Palisades via 125th St. ferry—dinner, dancing, etc.

On the second day, a geological field trip will be made to the Bear Mountain Interstate Park (one group is scheduled for the Pine Hill fossil locality, Highland Mills, a short distance northwest of the Park).

Further information may be obtained on application to the Department of Geology, C.C. N.Y., Convent Avenue and 139th St., New York 31, N. Y.

The Nebraska Mineralogy and Gem Club

The Club held its Annual Dinner at the Hotel Rome, Omaha, Nebr., Thursday, March 20. 1947, 6:30 p.m.

This was the event of the year.

Colored motion pictures of the University of Nebraska State Museum Field Expeditions was shown with lecture by Dr. C. S. Schultz, Director of the Museum.

The mineral collection of our late member Mr. Fred Eastman, was on display. Mrs. Eastman was our guest.

Bertha C. Minardi, Secretary

WITH OUR DEALERS

A new advertiser is E. Lee Sigfrit, of Bend, Ore., who specializes in Oregon agates and agate jewelry.

Another new advertiser is C. I. Young, of Martinez, Calif., who features cabochon and specimen material.

Stardust Gemhouse, of Phoenix, Ariz., has a "Dress-up Special" in this issue. Give it the once-over!

Another new advertiser is Frank Ingram, of Griffin, Ga., who offers some exceptional mineral specimens from Brazil.

George Bryant, of Alton Sta., Ky., who has been using the Classified pages for many months, branches out this month with a small display ad. George the Rockhunter suggests a workbuggy for collectors.

Gemarts Company, of San Diego, Calif., are agents for lapidary equipment and supplies —they also carry many varieties of minerals.

Still another new advertiser is Oregon Discoveries, of Sherwood, Ore., whose heading "Something new under the sun" should intrigue all readers.

Nevada Turquoise Mines, Inc., of Mina, Nev., can furnish many varieties of gem material including, of course, fine turquoise from their own mines.

Jewelry craftsmen—need any supplies, findings, etc? Contact Wildberg Bros. Smelting & Refining Co., of Los Angeles and San Francisco, Calif.

A new advertiser is the King Philip Shop, of Swansea, Mass., whose proprietor is Anthony Thurston, a former G. I. who had several interesting articles in *Rocks and Minerals*.

Schortmann's Minerals, of Easthampton, Mass., have a large stock of selected mineral specimens some of which are listed in this issue.

Charles A. Thomas, of Royersford, Penn., specializes in micro-mounts and fluorescent minerals.

Choice cabochon stones cut from agates, jaspers, woods, etc. may be obtained from W. J. Kane, San Francisco, Calif.

A new advertiser is Gorham's Gem Shop, of Ajo, Ariz., who can supply slabs of many Western agate and other minerals.

Another new advertiser is Ellis' Minerals, of Hawthorne, Nev., whose first offer is a nice gold specimen.

Sliced cutting and specimen material may be had from the Hodge Podge Shop, of Grants Pass, Ore.

Burminco, of Monrovia, Calif., are planning to attend the California Convention, May 23-25th. They will be glad to see you there.

More good minerals for discriminating collectors are listed by Harrison S. Cobb, of Boulder, Colo.

Some fine old foreign specimens are advertised by E. Mitchell Gunnell, of Denver, Colo.

If you want bright, beautfiul colors in Arizona agate, jasper and petrified wood—buy from the man who mines them—is the advice of Chas. E. Hill, of Phoenix, Ariz.

Chuck Jordan, of El Monte, Calif., is overstocked on slabs. A special of his, however, is an attrative box containing 24 identified fluorescent specimens.

Another new advertiser is Mrs. Gene E. Belz, of Lansdale, Penn., who has, for immediate delivery, micro-mount boxes.

Beautiful Mexican agates, sawed slices only, are available from Mrs. B. F. Nonneman, of Salinas, Calif.

Thompson's Studio, of Pomona, Calif., has a number of good fluorescent minerals in stock.

Some of that new California cutting material announced last month by Toupal Brothers, of San Jose, Calif., is still available. Order some today before it is all gone.

Donald S. Fraser, of Long Beach, Calif., is offering for sale his entire stock of duplicate specimens.

Seven rare minerals are featured by Universal Minerals, of Los Angeles, Cailf.

Cabochons, slab cutting materials, and lapidary supplies may be obtined from Arch Nisbet, of Chicago, Ill.

Another new Texas fluorescent is announced by Frank Duncan and Daughter, of Terlingua, Texas.

Hugh A. Ford, of New York City, releases his 11th list of fine minerals from an old collection.

Excellent xled specimens of austinite as well as other minerals for the collector are listed by Ward's, of Rochester, N. Y.

World's Minerals, of Oakland, Calif., announces that they are exclusive Northern California distributors for several brands of lapidary equipment.

A G. Parser, of New York City, lists a number of imported minerals—many of gem quality.

Allan Branham, of Lander, Wyo., who specializes in jade, lists more specimens of his favorite mineral.

Just a reminder!—is the advice of Herbert Sussbach, of New York, N. Y., Look the ad up quickly to see what it is all about!

Arizona gem agates is a speciality of Mary-Ann Kasey, of Prescott, Ariz.

S-T Gem & Mineral Shop, of Tujanga, Calif., is specializing in a complete stock of Highland Park lapidary equipment.

Still another new advertiser is Temple City Gem Co., of Temple City, Calif., who are miners and producers of rough turquoise.

A new advertiser is W. N. Mitchell, of Fort Lee, N. J., who has some nice gem material for facet cutters.

If you are in need of boulder opal specimens, N. H. Seward, of Melbourne, Australia, has thosuands of them, at all prices and sizes. His List No. 456 will be sent free upon request.

Edwin Skidmore, of Westfield, N. J., a new advertiser, can supply choice New Jersey minerals, also a powerful fluorescent lamp.

D. W. Cluff & Co., of Denver, Colo., another new advertiser, are specialists in supplies for fine craftsmen.

The Gem Exchange, of Bayfield, Colo., is with us again.

John S. Albanese, of Newark, N. J., will have an exhibit of fine and rare mineral specimens at the 8th Annual Convention at Santa Barbara, Calif., May 23-25. William C. Oke, of Los Angeles, Calif., will be in charge of the exhibit.

BIBLIOGRAPHICAL NOTES

A method for the spectrochemical determination of germanium, tin and lead in ore samples:— by Graham W. Marks and H. Tracy Hall.

Contains 38 pages, 23 figures, and issued as R.I. 3965

Exploration of Iron Mountain Titaniferous Magnetite Deposits, Albany County, Wyo.;— by Eugene Frey.

The Iron Mountain deposits were examined in the summer of 1943 by engineers of the U.S. Bureau of Mines. The report contains 37 pps. and has 14 figs. Issued as R.I. 3968.

Exploration of Alunite deposits, Marysvale, Piute County, Utah: by John H. Hild.

During 1942 engineers of the U.S. Bureau of Mines in cooperation with the Geological Survey, explored the deposits which are located within a radius of 10 miles of Marysvale.

The report contains 74 pps. and 20 figs.

The above three reports were recently issued by the U.S. Bureau of Mines, Washington, D. C. as Reports of Investigation (R.I. 3965.-3968 and 3972, respectively).

The Geology of the Bellows Falls Quadrangle: by Frederick C. Kruger.

19 pps., 6 figs. and 1 map. (in pocket)

The Geology of the Mt. Washington Quadrangle: by Marland P. Billings, Katharine Fowler-Billings, Carleton A. Chapman, Randolph W. Chapman and Richard P. Goldthwait.

56 pps., 32 figs., 1 map (in pocket).

The Geology of the Plymouth Quadrangle: by Charles B. Moke.

21 pps. 5 figs., 1 map (in pocket).

The above three pamphlets on New Hampshire geology are designed to appeal to the layman and are not intended to be elaborate reports for the professional geologist. The texts are written in simple language and few scientific names are used.

Published by the State Planning and Development Commission, Concord, N. H.

Census of Western Australian Minerals: By Dorothy Carroll, Ph. D., D. I. C.

This is a list of Western Australian minerals and the localities in which they occur compiled from records kept in the Government Chemical Laboratory, which undertakes the mineralogical work for the state, and from published works of the Geological Survey and Geological Department of the University of Western Australia.

The list may be considered to be fairly complete to the end of 1943.

The minerals are listed alphabetically, beginning with actinolite and ending with zoisite.

72 pages, 1 small map, issued as Bulletin No. 1 (1945).

Tantalum and Niobium: by Keith R. Miles, D.Sc., F.G.S.; Dorothy Carroll, Ph.D., D.I.C.; and H.P. Rowledge, A.A.C.I., A.W.A.S.M

Western Australia has produced a large proportion of the world's supply of high grade tantalite and is unique in the number of localities in which tantalum and niobum minerals are found.

The bulletin is divided into three parts:— Part 1. "Tantalite in Western Australia," by Dr. K. R. Miles; Part 2. "The Properties and uses of tantalum and niobium," by H.P. Rowledge; Part 3. "Western Australian Tantalum and Niobium Minerals," by Dr. D. Carroll.

Four plates, 14 figures, 166 pages. Issued as Bulletin No. 3 (1945).

The above two bulletins have been issued by the Department of Mines, Perth, W. Australia.

HOBBY JEWELRY BUSINESS

(Continued from page 318)

elry is different.

He uses semi-precious stones for settings including jades, all varieties of agates, amethysts, obsidians, variscites, azurites, malachites, and many other stones. Some stones are bought in form of rough gems from dealers and collectors in the Western states, while others are native stones of North Carolina. Sterling silver is used for most of the jewelry and pure silver for the bezels of rings.

Mr. Hopkins is a member of the Rocks and Minerals Association, the largest organization of its kind in the world, and also of the Handcraft League Craftsmen.

Hand made jewelry in an age of machines is rare. "It must have a smooth, professional look," Mr. Hopkins says. And from a hobby which grew out of sheer boredom, he has achieved that "smooth, professional" look in all the jewelry which he makes.

DESERT SUN COLORED GLASS

GEORGE H. LOBDELL
White Creek, N. Y.

A peculiar phenomenon sometimes occurs when ordinary white glass is exposed to the rays of the desert sun for a period of many years. The glass changes in color, usually toward a delicate amethyst purple, but other colors, such as blue, green and straw result. As this is not a common occurrence, this sun colored glass is comparatively rare.

There is a difference in opinion as to why this phenomenon occurs. Some say it is the soil gasses that penetrate the glass, while others hold that it is the manganese in the glass. The beautiful hues of the desert sun colored glass, I attribute to two facts, namely the dryness of the desert air and the intensity of the sun's rays. Even in the east, glass will take on a hue to a lesser extent.

In the manufacture of glass it is said that the iron in the sand will turn the glass green. In some manufacturing plants I learn that manganese is added as a flux to purify the silica and the sand from certain pits or localities will influence the color.

Many pieces of glass that for one reason or another were left on the desert trails by the early caravans on their way to the Pacific coast are of very fine quality and color. Perhaps this can be accounted for by the painstaking care of early hand methods and the longer sun exposure. These are of various items, mostly broken, such as coal oil lamps, cruets, whiskey and medicine bottles, cold cream jars and pieces of milky glass. Salts and peppers are also quite common as well as pitchers and water glasses. Occassionally whole articles are found.

Hunting and finding these glass pieces are indeed interesting as well as profitable as the pieces are high in price. Some very beautiful facetted stones have been cut from them and it would defy an expert to tell the difference from a genuine stone unless a hardness test is used.

CHATOYANT WERNERITE FROM CANADA

BY DR. W. B. S. THOMAS

Wernerite from Bancroft, Ontario, Canada, is prized for its fluorescence. Oddly enough it had not been suspected of making excellent cat's eye and the stuff does a swell job of chatoyance for the cab cutter. Again the chatoyance is across the grain as in spodumene but an easy way is to cut a ball and saw the ball in half after the grain is established.

Now this discovery really belongs to O. Ivan Lee, who noted that the pink cancrinite, advertised in a past issue of *Rocks and Minerals,* was very like the precious scapolite that is cut for cat's eye. He suspected that it might be chatoyant and then tried to get a substantial amount shipped in from Canada. The man who shipped it did not know anything about the material. The late Fred Horton gave me a fine piece which he said was Wilsonite, a variety of scapolite. At any rate both cancrinites, the yellow and the pink, from Bancroft, Ontario, do have a nice chatoyance. It is the first scapolite on the American Continent with chatoyance.

Banded Jasper and Hematite Found Near Stevens Point, Wisc.

A nice specimen of banded jasper and hematite has been received at the offices of *Rocks and Minerals.* The specimen is made up of brilliant dark red bands of jasper and hard bluish-black specular hematite. It was sent in by M. E. Schroeder, of Stevens Point, Wisc., whose letter read as follows:

"I am sending you a piece of mineral from a chunk found in a stone fence near this city. The chunk weighted 22 lbs., and as far as I know, there are no mineral deposits in this section of Wisconsin."

Stevens Point is a little city in central Portage County in central Wisconsin.

The specimen resembles those occurring at Ishpeming, Mich.

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Mt. Etna, Sicily

Mt. Etna, located on the east coast of the large island of Sicily, is the highest volcano in Europe. Its heighth is approximately 10,758 feet, (it changes after violent eruptions) and the circumference around its base is 90 miles.

In Sicily, its name is more commonly called Mongibello (a word compounded of Mons and Gibel, the Arabic (Gibel) signfying the same thing as the Latin word (Mons)—the two words mean "mountain" or "mountain of mountains." It is believed that the word "Etna" comes from the Hebrew word signifying" a furnace."

Its frequent eruptions, which it presents on a greater scale than is elsewhere seen in Europe, early attracted the attention of the ancients and were described by Pinder (the greatest lyric poet of Greece), who mentions the rivers of fiery lava rolling down its sides into the sea.

The nearby city of Catania has repeatedly been nearly ruined by the eruptions of Etna.

Besides those in ancient times, there were destructive eruption in 1169, 1669, 1693, 1755, 1852, 1865, 1874, 1879, 1886 1892, 1923 and 1928 and during the latter part of February and early March, 1947, violent eruptions took place.

Aside from its destructive volcanic eruptions, Mt. Etna is noted, also, for its many minerals. Among the minerals found on Mt. Etna are: Amphibole (hornblende); analcite, chrysolite, hematite (fine crystals), kremersite, labradorite (small grayish glassy crystals), mascagnite, melilite, sal-ammoniac, sulphur, and tridymite.

The Rocks and Minerals Association

(Members All Over the World)

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Mt. Kisco, N. Y.

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Muhlenberg College, Allentown, Penn.

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Box 29, Peekskill, N. Y.

Organized in 1928 for the increase and dissemination of mineralogic knowledge

To stimulate public interest in geology and mineralogy and to endeavor to have courses in these subjects introduced in the curricula of the public school systems; to revive a general interest in minerals and mineral collecting; to instruct beginners as to how a collection can be made and cared for; to keep an accurate and permanent record of all mineral localities and minerals found there and to print same for distribution; to encourage the search for new minerals that have not yet been discovered; and to endeavor to secure the practical conservation of mineral localities and unusual rock formations.

Ever since its foundation in 1928, the Rocks and Minerals Association has done much to promote the interest in mineralogy. It has sponsored outings, expeditions, formations of mineralogical clubs and the printing of many articles that have been a distinct contribution to mineralogy.

Those of our readers who are members of the Association can rightly feel that they too were sponsors of these many achievements that have helped to give mineralogy a national recognition. Among your friends there must be many who would like to have a part in the Association's work—to share with you the personal satisfaction, the pleasure, and the benefits of membership. Will you give your friends this opportunity to join the Association by nominating them for membership?

Each new member helps to extend the Association's activities—helps to make your magazine larger, better, and more interesting, and above all assists in the dissemination of mineralogical knowledge.

Some advantages of membership: All members in good standing receive:

(1) **Rocks and Minerals**, a monthly magazine. (2) A member's identification card that secures the privileges of many mines, quarries, clubs, societies, museums, libraries. (3) The right to participate in outings and meetings arranged by the Association. (4) The right to display a certificate of membership and to place after their names a designation indicating their membership or to advertise membership on stationery, etc. (5) The distinction and the endorsement which comes from membership in the world's largest mineralogical society.

Mineralogical clubs which subscribe for **Rocks and Minerals** also become affiliated members of the Rocks and Minerals Association and enjoy all the advantages which such an affiliation affords.

A number of clubs hold membership in the Association, participate in the annual outings, and co-operate in many ways in furthering the aims and ambitions of the Association.

Affiliation with the world's largest mineralogical society cannot fail to increase membership, enlarge circles of acquaintanceship, and stimulate a keener interest in mineralogy.

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